

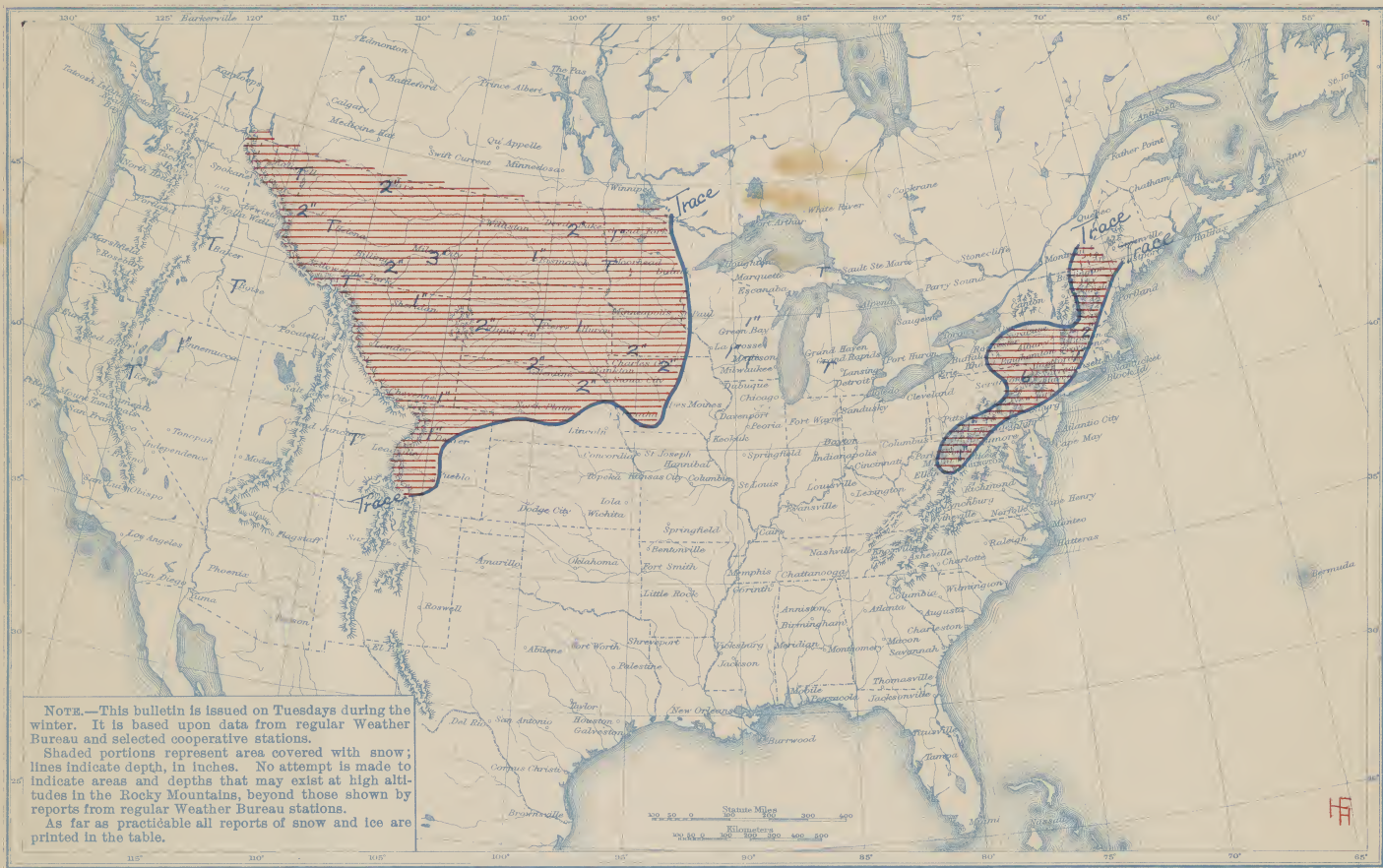
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W3778

U. S. DEPARTMENT OF AGRICULTURE,
WEATHER BUREAU.
CHARLES F. MARVIN, CHIEF.

SNOW AND ICE BULLETIN.



WASHINGTON, D. C., December 8, 1914.
DEPTH OF SNOW.

Near the end of the second decade of November a storm of considerable magnitude moved over the northeastern States, and rather heavy falls of snow for the period of the year occurred in the interior of New England and over northern and eastern New York. Aside from the above but little snow occurred in any portion of the country during November, the falls being unusually light in the western Mountain regions.

Within the last day or two small amounts of snow have fallen in the districts between the upper Mississippi Valley and the Rocky Mountains and locally in the Appalachian Mountains and Plateau region. Elsewhere at the present time the ground is bare of snow.

The serious lack of moisture that was being felt throughout much of the country at the end of November has been very generally relieved during the past few days by moderate to copious rains in practically all portions.

Greatly needed rains have recently fallen over nearly the entire winter wheat region, which should prove very beneficial. As the ground is generally free of frost and the rains have been moderate, practically the entire fall has passed into the soil, and the outlook for wheat at the beginning of the winter should be greatly improved.

ICE IN RIVERS AND HARBORS.

During the cold period in November, from about the 16th to 23d, ice formed to a considerable extent on the smaller streams of the northern districts, and it is reported that the Missouri River was frozen over at Yankton, and more or less ice formed farther south.

Warm weather during the latter part of November and the first few days of the present month caused most of this ice to disappear, and at the present writing there is little on any of the rivers or lakes of the country save in the drainage of the upper Missouri and the Red River of the North. At Bismarck, N. Dak., the ice is 8 inches thick and on the Red River of the North there is somewhat less.

At the same period last year both of these rivers were practically free from ice.

The following special report has been received:

Yankton, S. Dak., December 7.—The Missouri River was frozen over at this place November 19, but has again been free of ice since the 24th.

P. C. DAY, Climatologist and Chief of Division.

DEPTH OF SNOW AND THICKNESS OF ICE AT 8 P. M., DECEMBER 7, 1914.

Stations.	Snow.	Ice in rivers, harbors, etc.	Stations.	Snow.	Ice in rivers, harbors, etc.	Stations.	Snow.	Ice in rivers, harbors, etc.
Colorado.	Inches	Inches	Minnesota—Cont'd	Inches	Inches	North Dakota.	Inches	Inches
Denver.....	1	.....	Mankato.....	T.	.....	Bismarck.....	1	8.0
Grand Junction...	T.	.....	Milan.....	1	.....	Devils Lake.....	2	.....
Pueblo.....	T.	.....	Minneapolis.....	1	.....	Williston.....	0	†
Connecticut.			Moorhead.....	T.	6.0	Oregon.		
Hartford.....	1	0.0	St. Paul.....	1	*	Baker.....	T.	.....
Idaho.			Worthington.....	2	.....	Pennsylvania.		
Boise.....	T.	.....	Montana.			Confluence.....	T.	.....
Iowa.			Billings.....	2	.....	Drifton.....	T.	.....
Atlantic.....	T.	.....	Havre.....	2	.....	Harrisburg.....	T.	0.0
Joone.....	T.	.....	Helena.....	T.	.....	Reading.....	T.	0.0
Charles City.....	T.	.....	Kalispell.....	T.	.....	Seranton.....	6	.....
Creston.....	1	.....	Miles City.....	3	.....	Somerset.....	1	.....
Forest City.....	2	.....	Missoula.....	2	.....	Towanda.....	T.	.....
Mason City.....	2	.....	Nebraska.			South Dakota.		
Pocahontas.....	1	.....	Imperial.....	1	.....	Huron.....	1	3.5
Sioux City.....	T.	0.0	Kearney.....	T.	.....	Pierre.....	T.	*
Maine.			North Platte.....	2	.....	Rapid City.....	2	.....
Cornish.....	T.	.....	Oakdale.....	2	.....	Yankton.....	1	0.0
Gardiner.....	0	*	Valentine.....	2	.....	Vermont.		
Leviston.....	T.	4.0	Nevada.			Brattleboro.....	0	*
Massachusetts.			Reno.....	T.	0.0	West Virginia.		
Fitchburg.....	2	.....	Winnemucca.....	1	.....	Bayard.....	1	.....
Michigan.			New Jersey.			Elkins.....	T.	0.0
Grand Rapids.....	T.	.....	Newark.....	T.	.....	Wisconsin.		
Houghton.....	0	†	Newton.....	T.	.....	Hancock.....	1	.....
Newberry.....	T.	.....	Phillipsburg.....	T.	.....	Madison.....	T.	.....
Minnesota.			New York.			Medford.....	1	.....
Angus.....	1	.....	Albany.....	T.	0.0	Wyoming.		
Collegeville.....	T.	.....	Binghamton.....	T.	.....	Cheyenne.....	1	.....
Fort Ripley.....	T.	.....	Herkimer.....	T.	.....	Lander.....	T.	.....
Grand Meadow.....	1	.....	Ithaca.....	T.	.....	Sheridan.....	T.	.....
Hinckley.....	1	Warwick.....	T.	Yellowstone Park.	1

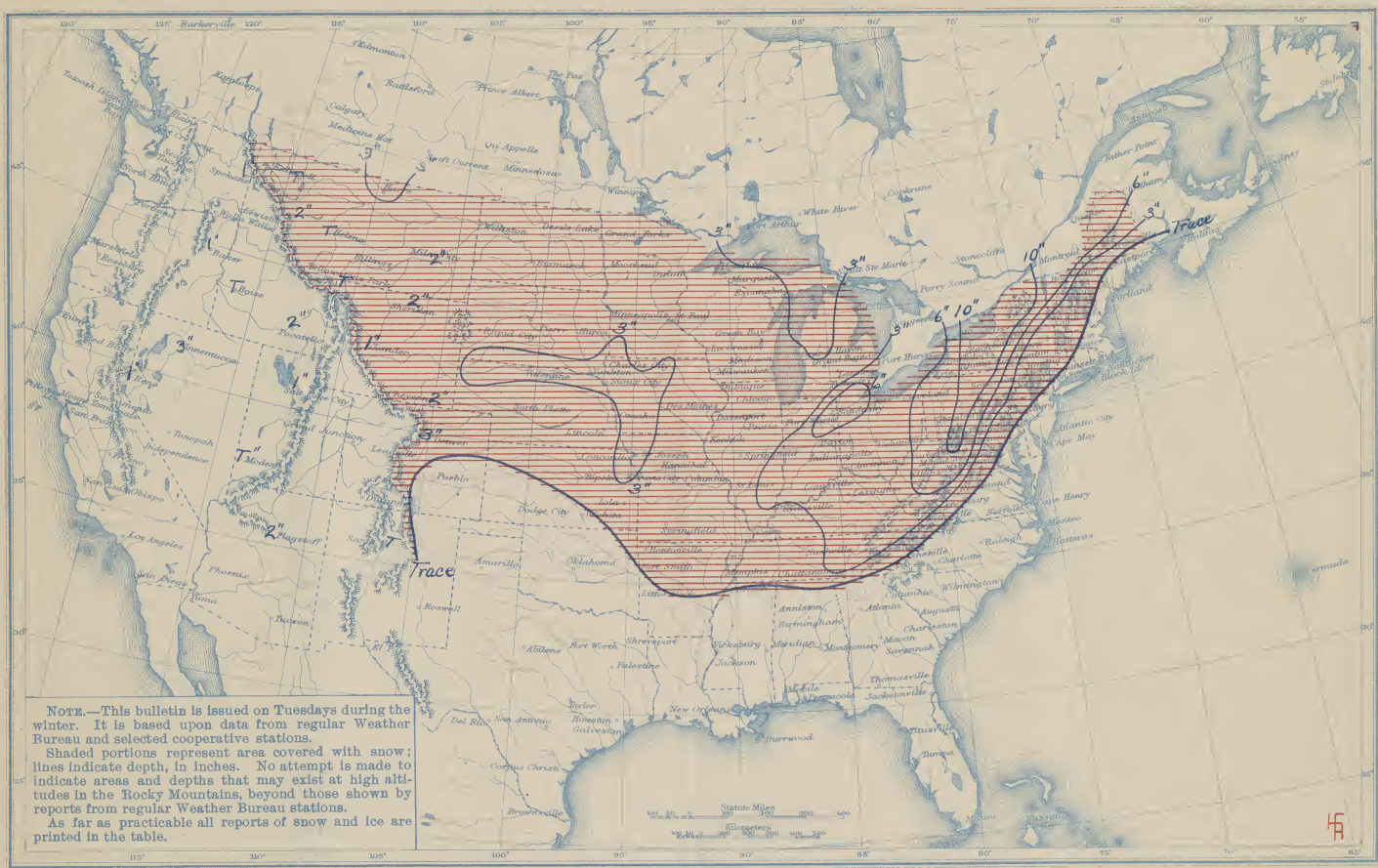
* Shore ice. † Floating ice. T. indicates trace.

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U.S. DEPARTMENT OF AGRICULTURE,
WEATHER BUREAU.
CHARLES F. MARVIN, CHIEF.

SNOW AND ICE BULLETIN.



WASHINGTON, D. C., December 15, 1914.

DEPTH OF SNOW.

The unsettled weather conditions prevailing as last week's bulletin was issued, persisted over the central valleys and eastern districts until after the middle of the week just closed. Light snow was of frequent occurrence in the lower Missouri, middle Mississippi, and Ohio valleys, while light rain occurred locally to the southward. During Saturday a storm of considerable extent developed over the west Gulf coast and by Sunday morning it had moved to southern Alabama, with heavy rains in portions of the Gulf States, while more or less snow was falling to the northward as far as the Lake region. By Monday morning the storm center had moved rapidly to New England accompanied by heavy rains along the Atlantic coast and heavy snow in portions of the Appalachian Mountain districts, the upper Ohio Valley, the lower Lake region, and northern New York.

Over the western Mountain districts and along the Pacific coast but little rain or snow appears to have occurred.

At 8 p. m. Monday there was more or less snow covering the ground in all northern and central districts from the Rocky Mountains eastward. From the Mississippi Valley westward the depths were generally from 1 to 2 inches or less, except in portions of the immediate lower Missouri Valley, where the depths were from 3 to 5 inches. From the lower Ohio Valley northeastward over the lower Lake region and Appalachian Mountain districts to northern New England the depths now range from 5 to 10 inches, with extreme depths of 12 to 15 inches in portions of central and northern New York.

Over the western Mountain districts but little snow appears to have fallen so far, and the stock stored in the high mountains is probably far below the usual amount in practically all districts.

In the winter wheat region the ground has a fairly general, slight snow cover which, having fallen before the recent cold wave, should afford some protection to the growing wheat.

ICE IN RIVERS AND HARBORS.

Since the issue of last week's bulletin lower temperatures have occurred in most districts, and at the close of the present week a cold wave of considerable severity has overspread nearly the entire country, with freezing temperatures near the Gulf coast and below zero temperatures in the northern districts.

As a result of the continued cold, ice has formed to a considerable thickness in the upper portions of the Mississippi and Missouri rivers and their tributaries. Ice to the thickness of 6 inches is reported near the headwaters of the Mississippi and it is near a foot in thickness in the upper Missouri. Small amounts of ice have formed on the protected harbors of the Great Lakes, and in northern New England ice a foot or more in thickness has formed on some of the lakes and rivers.

Compared with the same period in 1913 there is now much more ice than at that time.

The following special reports have been received:

Albany, N. Y., December 15.—The snow in the Mohawk Valley ranges from 2 to 7 inches in depth, and in the Hudson Valley it ranges from a trace at Coeymans to 10 inches at Thurman. There is thin ice in portions of the Mohawk and upper Hudson rivers.

Binghamton, N. Y., December 15.—The snow in the upper Susquehanna watershed averages 5 inches deep, in the Unadilla 6 inches deep, and in the Chenango and Tioughnioga 10 inches deep, the greatest depth reported being 14 inches at Marathon, N. Y.

Yankton, S. Dak., December 14.—In the Missouri River at this place, running slush ice started on the 9th, becoming solid on the 12th.

P. C. DAY, Climatologist and Chief of Division.

DEPTH OF SNOW AND THICKNESS OF ICE AT 8 P. M., DECEMBER 14, 1914.

Stations.			Snow.		Ice in rivers, harbors, etc.		Stations.			Snow.		Ice in rivers, harbors, etc.		
	Inches	Inches		Inches	Inches			Inches	Inches		Inches		Inches	
Arizona.			Michigan—Cont'd.			Ohio—Cont'd.								
Flagstaff	2		Detroit	3	1.0	Marion		4						
Arkansas.			Escanaba	T.	*	New Bremen		4						
Bentonville	T.		Grand Rapids	3		Philo		3						
Fort Smith	2	0.0	Houghton	4	2.0	Sandusky		4	1.0					
Little Rock	2	0.0	Ironwood	2		Tiffin		8						
Colorado.			Lansing	1		Toledo		6	0.5					
Denver	3		Ludington	3	0.0	Wauseon		9						
Dist. of Columbia.			Marquette	2	*	Waverly		1						
Washington	T.	0.0	Newberry	3		Youngstown		4						
Idaho.			Port Huron	2	0.0	Oregon.								
Boise	T.		Saginaw	2	2.0	Baker		1						
Lewiston	0	*	St. Ignace	3		Pennsylvania.								
Pocatello	2		Sault Ste. Marie	3	†	Center Hall		8						
Illinois.			Minnesota.				Drifton	6						
Cairo	3	0.0	Duluth	T.	6.0	Erie		6	0.0					
Chicago	1		Moorhead	T.	14.0	Franklin		6						
Macomb	2		St. Paul	T.	6.0	Greensboro		8						
Peoria	1	1.0	State Sanatorium	1		Greenville		5						
Shawneetown	7		Worthington	6		Hanover		2						
Springfield	1		Mississippi.				Harrisburg	3	†					
Indiana.			Corinth	T.		Huntingdon		6						
Bloomington	4		Missouri.				Indiana	8						
Evansville	1	0.0	Columbia	1		Parkers Landing		6						
Port Wayne	8		Hannibal	T.	†	Pittsburgh		6	0.0					
Indianapolis	3		Kansas City	4	†	Reading		T.						
Jeffersonville	1		St. Joseph	3	†	Ridgway		7						
Knox	5		St. Louis	T.	†	Seranton		2						
La Fayette	5		Springfield	1		Somerset		10						
Marion	6		Montana.				Sunbury	3						
Paoli	5		Havre	4		Warren		5						
Terre Haute	3	1.0	Miles City	2		Williamsport		12						
Winona Lake	4		Missoula	2		South Dakota.								
Iowa.			Nebraska.				Huron	2	6.5					
Albia	2		Alliance	5		Pierre		1	*					
Boone	3		Auburn	1		Rapid City		2						
Carroll	2		Broken Bow	2		Yankton		2	3.5					
Charles City	4		Kearney	2		Tennessee.								
Creston	4		Lincoln	2		Chattanooga		4	0.0					
Davenport	1	†	McCook	1		Memphis		T.	0.0					
Des Moines	2	3.0	North Platte	2		Nashville		2	0.0					
Dubuque	1	†	Omaha	2	4.0	Utah.								
Forest City	1		Valentine	4		Modena		T.						
Iowa City	1		Wisner	4		Salt Lake City		1						
Keokuk	T.	1.5	Nevada.				Vermont.							
Sioux City	4	†	Reno	1	0.0	Brattleboro		2	2.0					
Kansas.			Winnemucca	3		Burlington		4	0.0					
Iola	1	1.0	New Jersey.				Northfield	6						
Manhattan	2		Phillipsburg	1		Virginia.								
Marion	1		New Mexico.				Buchanan	4						
Ottawa	3		Roswell	1		Culpeper		2						
Topeka	2		New York.				Lynchburg	T.	0.0					
Kentucky.			Addison	13		Staunton		7						
Beattyville	5		Binghamton	8		Woodstock		6						
Bowling Green	2		Buffalo	4	0.0	Wytheville		4						
Earlington	4		Canton	12		Washington.								
Eubank	3		Ithaca	12		Spokane		1						
Greensburg	3		Ogdenburg	14		West Virginia.								
Hopkinsville	4		Oswego	15	0.0	Bayard		10						
Lexington	4		Rochester	10	1.0	Burlington		6						
Louisville	2	0.0	Rome	8		Charleston		2						
Maysville	4		Syracuse	10		Elkins		5						
Mount Sterling	6		Warwick	T.		Fairmont		9						
St. John	3		Watertown	14		Hinton		6						
Williamsburg	3		North Carolina.				Huntington	5						
Maine.			Asheville	2		Parkersburg		2	0.0					
Bangor	0	6.0	North Dakota.				Rowlesburg	9						
Greenville	6	12.0	Bismarck	2	11.0	Wisconsin.								
Lewiston	0	6.0	Devils Lake	2		Green Bay		1	3.0					
Millinocket	4		Williston	T.	8.0	Hancock		2						
Maryland.			Ohio.				La Crosse	T.	*					
Frederick	2		Ashland	5		Madison		1						
Oakland	7		Cadiz	7		Medford		1						
Massachusetts.			Canton	4		Milwaukee		1	0.0					
Amherst	T.		Cincinnati	2	0.0	Viroqua		2						
Fitchburg	4		Cleveland	2	0.0	Wyoming.								
Michigan.			Columbus	2		Cheyenne		2						
Alpena	1	*	Coshocton	2		Lander		1						
Calumet	5		Hiram	6		Sheridan		1						

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U. S. DEPARTMENT OF AGRICULTURE,
WEATHER BUREAU.

CHARLES F. MARVIN, CHIEF.

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SNOW AND ICE BULLETIN.



WASHINGTON, D. C., December 22, 1914.

DEPTH OF SNOW.

The southern storm, reported in the last bulletin, passed off the Canadian Maritime Provinces about the beginning of the week just ended, and was followed by generally fair and much colder weather, except that snow flurries continued in the region of the Great Lakes and in northern New England.

During the following day or two fair weather continued and but little precipitation occurred in any portion of the country, but by Tuesday morning a depression was approaching the California coast and rain had set in over that State, and snow was falling in Nevada and Utah. This disturbance moved slowly eastward, accompanied by snow in the Rocky Mountain districts, and by Saturday morning barometric conditions were unsettled over much of the country, continuing so east of the mountains during the last days of the week. The week closed with a storm of considerable magnitude passing rapidly down the St. Lawrence Valley, causing snows over the northern States from New England westward to Minnesota, and rain or snow in the middle Mississippi and Ohio valleys and middle Atlantic States, and rain in the South Atlantic and Middle Gulf States.

The accompanying chart shows the snow covering at 8 p. m., Monday. In the winter wheat belt there is a general snow covering ranging from 3 to 6 inches in depth, while amounts ranging from 1 to 2 inches are quite general in the spring wheat region from the Great Lakes westward to Montana. From Pennsylvania northeastward to New England the depths range from 6 to 10 inches, with extreme amounts of 20 inches or more in northern New York.

The general snow covering over the winter wheat region during the recent cold period was doubtless very beneficial to the wheat crop.

While snow was rather frequent in portions of the Rocky Mountain and Plateau districts, it was generally light at the lower elevations, and no important additional deposits are reported from those localities, and the stored amounts at the higher elevations are probably still much less than usual.

Considerable snow disappeared during the week from the middle Appalachian Mountain region and the Ohio drainage basin, but in most other sections where snow obtained the depths were increased during the week by additional deposits.

ICE IN RIVERS AND HARBORS.

During the first and middle portions of the week cold weather continued, but the latter part was generally not quite so cold. As a result of the continued low temperatures the increase during the week in the thickness of ice was considerable at most points where ice had formed. In the upper Mississippi and Missouri valleys, as well as in the harbors of the Great Lakes, the increase during the week amounted to from 6 to 8 inches or more.

In western Lake Superior ice is now reported to the thickness of a foot, while from 6 to 8 inches have formed in the harbors of the lower Lakes. In the Missouri River the thickness now ranges from about 18 inches in North Dakota to 8 or 9 inches in Nebraska, while from 6 to 9 inches are reported from the upper Mississippi from Keokuk northward. Floating ice is observed as far south as Cairo. In New England 2 or 3 inches of new ice have formed, while small amounts are reported in the Middle Atlantic and Ohio Valley States.

Compared with the same period last year, the ice extends much farther southward and the amounts are considerably greater.

The following special reports have been received:

Hartford, Conn., December 22.—The snow in the Connecticut Valley averages 4 inches in depth, with the storm still in progress at time of report. Navigation of the lower Connecticut River has ceased, the river being practically closed.

Albany, N. Y., December 22.—The snow in the Hudson Valley ranges from 2 inches in depth at Stuyvesant to 20 inches at Thurman, and in the Mohawk Valley it averages 6 inches in depth. The Hudson River is open south of Troy.

Pittsburgh, Pa., December 21.—The amount of snow over the watersheds of the upper Ohio has decreased, and now averages from 1 to 5 inches at lower elevations and from 5 to 9 in the eastern mountains. The Monongahela and Youghiogheny rivers have risen and the ice is moving out, but the Allegheny remains frozen.

P. C. DAY, Climatologist and Chief of Division.

DEPTH OF SNOW AND THICKNESS OF ICE AT 8 P. M., DECEMBER 21, 1914.

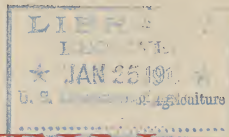
Stations.		Stations.		Stations.	
Snow.	Ice in rivers, harbors, etc.	Snow.	Ice in rivers, harbors, etc.	Snow.	Ice in rivers, harbors, etc.
Arizona.	Inches	Michigan—Cont'd.	Inches	North Dakota.	Inches
Flagstaff.	7	Detroit.	8	Bismarck.	2
Colorado.		Escanaba.	1	Devils Lake.	2
Denver.	5	Grand Haven.	2.5	Williston.	11.5
Pueblo.	6	Grand Rapids.	6		
Connecticut.		Houghton.	8	Ashland.	4
Hartford.	2	Iron Mountain.	1	Canton.	2
Idaho.		Ironwood.	4	Cincinnati.	T.
Lewiston.	0	Lansing.	5	Cleveland.	T.
Pocatello.	8	Ludington.	6	Columbus.	1
Illinois.		Manistee.	10	Dayton.	1
Bement.	5	Marquette.	1	Hiram.	5
Bloomington.	7	Newberry.	7	Marion.	1
Cairo.	0	Port Huron.	7	Phil.	1
Chicago.	4	Saginaw.	5	Sandusky.	4
Macomb.	8	Sault Ste. Marie.	14	Tiffin.	6
Peoria.	7	Minnesota.		Toledo.	7
Pontiac.	6	Angus.	4	Oregon.	
Springfield.	4	Duluth.	1	Baker.	T.
White Hall.	4	Fort Ripley.	1	Roseburg.	T.
Indiana.		Grand Meadow.	4	Pennsylvania.	
Columbus.	2	International Falls.	2	Center Hall.	6
Evansville.	T.	Mankato.	3	Drift.	7
Fort Wayne.	10	Minneapolis.	2	Erie.	7
Indianapolis.	8	Moorhead.	1	Everett.	5
Knox.	12	St. Paul.	1	Franklin.	3
La Fayette.	6	Missouri.		Greenville.	3
Marion.	3	Brunswick.	8	Harrisburg.	3
Paoli.	3	Columbia.	4	Huntingdon.	8
Richmond.	3	Humboldt.	5	Johnstown.	6
Terre Haute.	3	Kansas City.	7	Parkers Landing.	4
Iowa.		Pacific.	2	Pittsburgh.	1
Charles City.	5	St. Joseph.	8	Reading.	T.
Creston.	6	St. Louis.	T.	Ridgway.	4
Davenport.	5	Springfield.	T.	Scranton.	T.
Des Moines.	5	Montana.		Towanda.	11
Dubuque.	6	Billings.	2	Warren.	4
Estherville.	6	Columbia.	4	West Newton.	3
Forest City.	7	Helen.	4	Williamsport.	13
Iowa City.	6	Kalispell.	T.	Rhode Island.	
Keokuk.	7	Miles City.	1	Providence.	T.
New Hampton.	6	Missoula.	4	South Dakota.	
Pocahontas.	7	Nebraska.		Huron.	2
Sioux City.	6	Alliance.	4	Pierre.	T.
Kansas.		Auburn.	4	Rapid City.	1
Concordia.	4	Central City.	10	Yankton.	4
Dodge City.	8	Cute Rock.	7	Texas.	
Ellinwood.	4	Kearney.	11	Amarillo.	1
Iola.	3	Lincoln.	6	Utah.	
Liberal.	2	North Platte.	3	Modena.	2
Marion.	5	Omaha.	7	Salt Lake City.	2
Topeka.	9	Valentine.	4	Vermont.	
Wichita.	2	Wisner.	8	Brattleboro.	8
Maine.		Nevada.		Burlington.	5
Bangor.	3	Reno.	2	Northfield.	11
Eastport.	6	Tonopah.	3	Virginia.	
Gardiner.	4	Winnemucca.	8	Culpeper.	1
Greenville.	11	New Hampshire.	8	Woodstock.	2
Lewiston.	6	Concord.	6	Washington.	
Millinocket.	9	Durham.	7	Spokane.	1
Portland.	7	Hanover.	3	West Virginia.	
Van Buren.	2	Keene.	5	Bayard.	3
Maryland.		Addison.	9	Fairmont.	2
Fredrick.	1	Albany.	5	Parkersburg.	2
Oakland.	2	Beaver River.	24	Rowlesburg.	2
Massachusetts.		Binghamton.	6	Wisconsin.	
Boston.	2	Bouckville.	14	Brohead.	7
Concord.	5	Buffalo.	6	Green Bay.	3
Fitchburg.	6	Canton.	10	La Crosse.	8
Michigan.		Ithaca.	10	Madison.	5
Alpena.	6	Lowville.	42	Medford.	1
Ann Arbor.	6	Oswego.	10	Milwaukee.	4
Battle Creek.	8	Rochester.	5	New London.	3
Big Rapids.	6	Rome.	7	Viroqua.	4
Cadillac.	12	Syracuse.	6	Wyoming.	
Calumet.	8	Warwick.	3	Cheyenne.	1
		Watertown.	20	Lander.	1
				Sheridan.	2

* Shore ice. † Floating ice. ‡ Ice gorged. § Measurement impracticable. T. indicates trace.

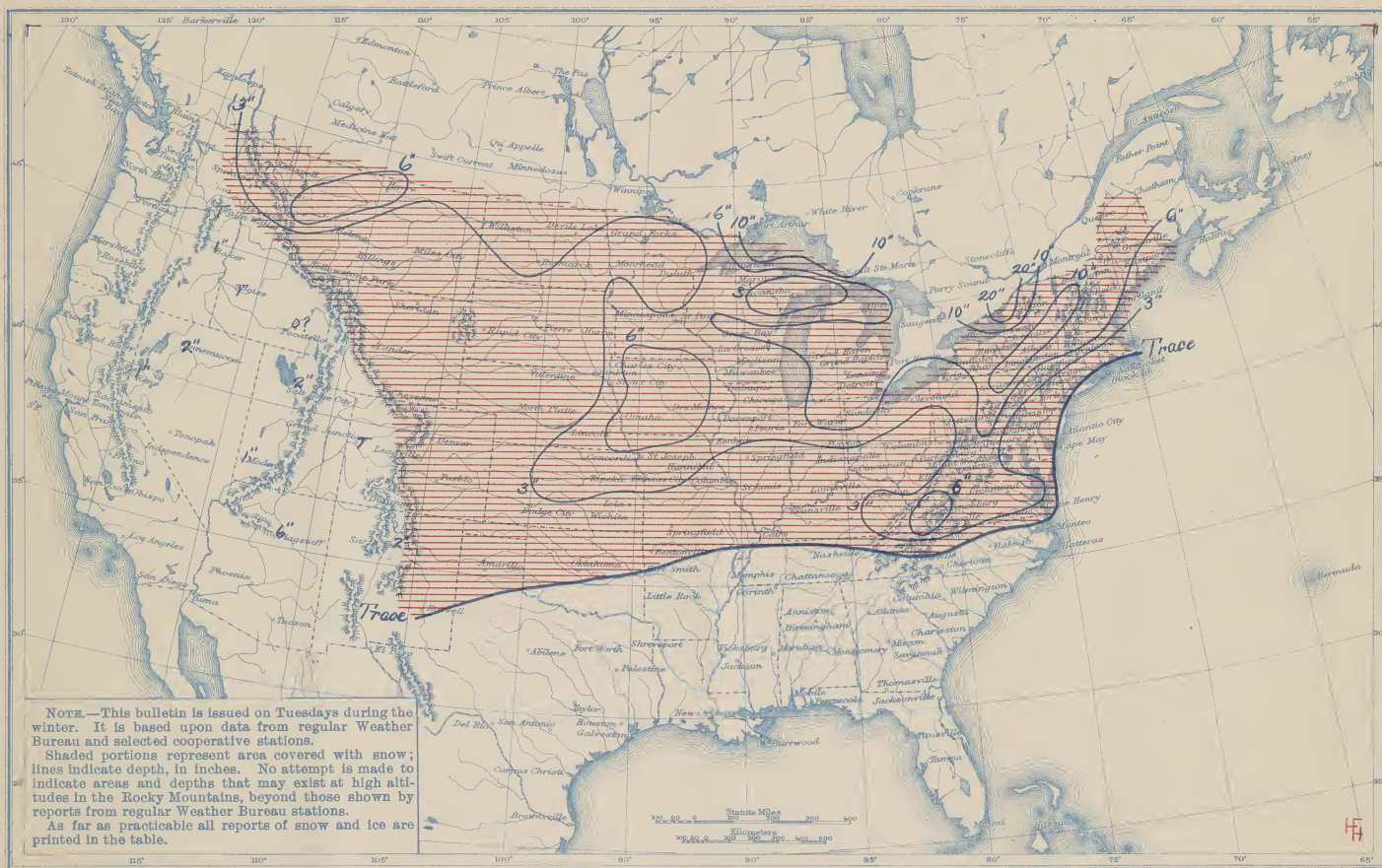
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U. S. DEPARTMENT OF AGRICULTURE,
WEATHER BUREAU.

CHARLES F. MARVIN, CHIEF.



SNOW AND ICE BULLETIN.



NOTE.—This bulletin is issued on Tuesdays during the winter. It is based upon data from regular Weather Bureau and selected cooperative stations. Shaded portions represent area covered with snow; lines indicate depth, in inches. No attempt is made to indicate areas and depths that may exist at high altitudes in the Rocky Mountains, beyond those shown by reports from regular Weather Bureau stations. As far as practicable all reports of snow and ice are printed in the table.

WASHINGTON, D. C., December 29, 1914.

DEPTH OF SNOW.

At the beginning of the week, with the passing to sea of the storm reported in the last bulletin as moving down the St. Lawrence Valley, the weather cleared throughout the Eastern States, except for snow flurries in the region of the Great Lakes, but at the same time another disturbance was passing inland from the extreme Southwest and rain had set in along the southern border from Texas to California.

This latter depression moved eastward over the more southern States during the following few days, and by Friday morning snow had occurred in northwestern Texas, Oklahoma, Arkansas, the upper Mississippi and Ohio valleys, the region of the Great Lakes, the Middle Atlantic States, and New England, and rain throughout the South Atlantic and Gulf States.

With the passing of the above-mentioned storm off the south Atlantic coast about the 26th, no widespread precipitation occurred until the close of the week, but at 8 a. m. Tuesday morning a well-defined disturbance had reached the Mississippi Valley, accompanied by rain in the central and southern districts from the Plains States eastward and snow over the more northern States, with the probability of continued snow Tuesday night and Wednesday in the region of the Great Lakes and snow or rain in the Ohio Valley, New York, and New England.

The snow covering at 8 p. m., Monday, is shown on the accompanying chart. The winter wheat region still has a general covering of from 2 to 4 inches of snow, which has afforded protection to the wheat crop during the protracted cold period of the last couple of weeks, but no important additional deposits are reported from the Rocky Mountain and Plateau districts, and the amounts at the higher elevations in most localities of those regions are probably still far below the average for the season.

ICE IN RIVERS AND HARBORS.

Cold weather for the season continued over much of the country east of the Rocky Mountains, especially the central and northern districts, until near the close of the week. This cold period culminated about the 26th in extremely low temperatures over practically all districts from the Mississippi Valley eastward, except in the Florida Peninsula, at which time temperatures as low as or lower than have been recorded in December during the last 20 or 30 years were reported from points in Illinois, New York, and New England.

As a result of this continued cold, considerable additional ice formed at practically all points at which it had previously been reported, and noteworthy formation was observed at points in the middle Mississippi Valley and the Middle Atlantic States which had been free of ice.

In western Lake Superior the ice is now 18 inches thick, while in the harbors of the lower Lakes the thickness ranges generally from 8 to 11 inches. In the Missouri the thickness now ranges from 22 inches at Bismarck, N. Dak., to about 10 inches in Nebraska, with some ice to the southward, while from 8 to 14 inches are reported in the upper Mississippi from Hannibal, Mo., northward. In New England 3 or 4 inches of new ice formed, and the thickness now ranges from 6 to 9 inches in the southern portions of New Hampshire and Vermont to more than 17 inches in the interior of Maine.

Ice of good thickness is now being harvested in the rural districts from Virginia and Kentucky northward.

The following special reports have been received:

Hartford, Conn., December 29.—The snow in the Connecticut Valley averages 7 inches in depth, the greatest reported being 12 inches. The ice averages 10 inches in thickness and harvesting has begun.

Albany, N. Y., December 29.—The snow in the Hudson Valley averages 8 inches in depth and in the Mohawk Valley 9 inches, the deepest reported being 17 inches at Northville. The ice in the Hudson and Mohawk rivers averages 7 inches in thickness.

Binghamton, N. Y., December 29.—The snow in the upper Susquehanna Valley averages 7 inches in depth, in the Unadilla and Chenango valleys 12 inches, and in the Tioughnioga 14 inches. The ice averages 8 to 12 inches in thickness.

Pittsburgh, Pa., December 28.—The Allegheny and Youghiogheny rivers are frozen over at nearly all points.

P. C. DAY, Climatologist and Chief of Division.

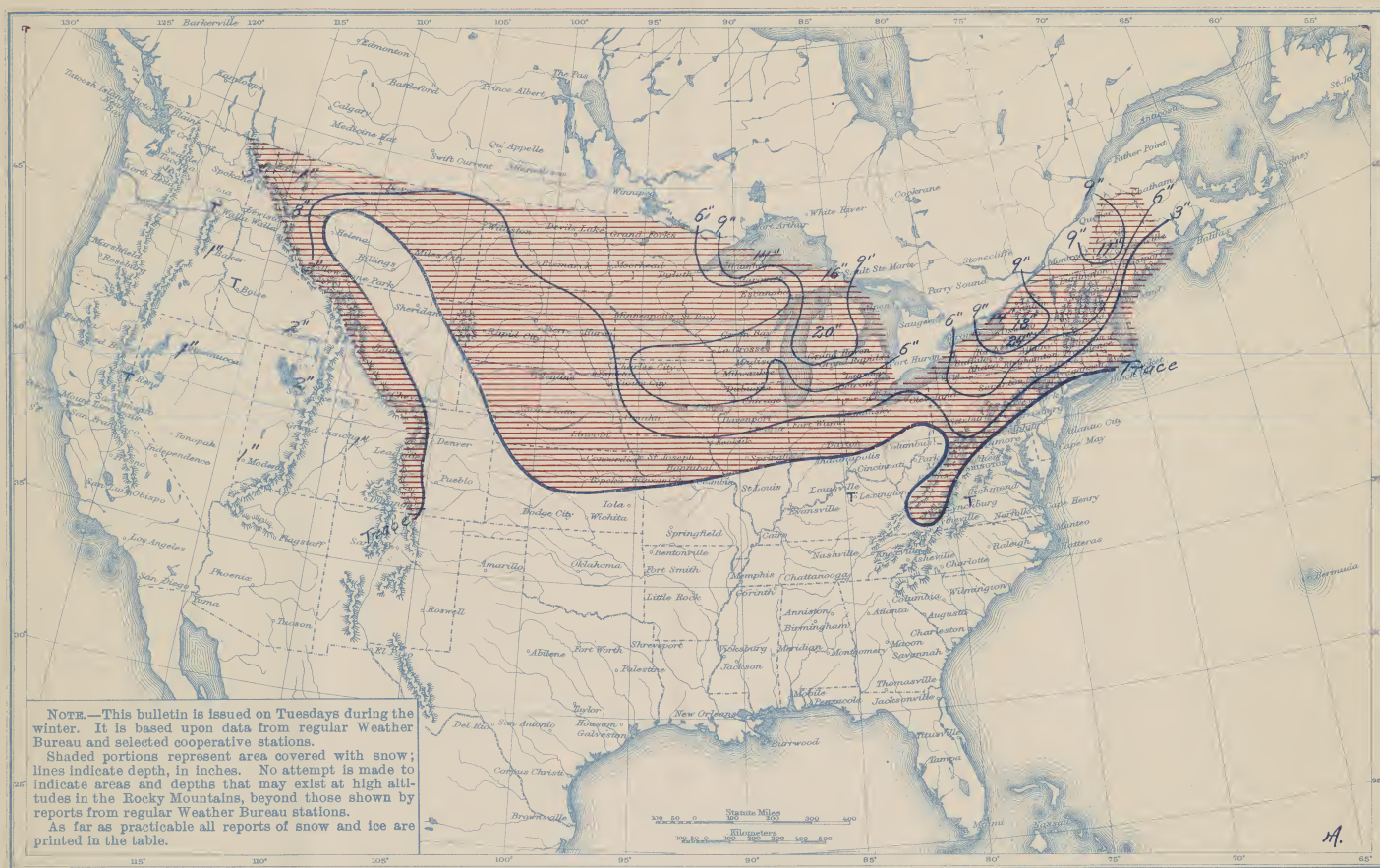
DEPTH OF SNOW AND THICKNESS OF ICE AT 8 P. M., DECEMBER 28, 1914.

Stations.	Snow.	Ice in rivers, harbors, etc.	Stations.	Snow.	Ice in rivers, harbors, etc.	Stations.	Snow.	Ice in rivers, harbors, etc.
Arizona.	Inches	Inches	Michigan—Cont'd.	Inches	Inches	Ohio—Cont'd.	Inches	Inches
Flagstaff.....	6	.....	Nowberry.....	10	.....	Dayton.....	2	4.0
Colorado.	.....	.....	Port Huron.....	8	7.5	Hiram.....	6	.....
Denver.....	1	.....	Saginaw.....	5	10.0	Sandusky.....	3	11.0
Connecticut.	.....	.....	Sault Ste. Marie.	14	3.0	Tiffin.....	6	.....
Hartford.....	2	9.0	Minnesota.	.....	.....	Toledo.....	7	7.5
New Haven.....	1	0.0	Duluth.....	3	18.0	Wauseon.....	9	.....
West Cornwall.....	5	.....	Fergus Falls.....	4	.....	Youngstown.....	1	.....
Dist. of Columbia.	.....	.....	Grand Meadow.....	6	.....	Oregon.	.....	.....
Washington.....	2	4.0	International Falls	2	.....	Baker.....	1	.....
Illinois.	.....	.....	Mankato.....	4	.....	Pennsylvania.	.....	.....
Bloomington.....	4	.....	Minneapolis.....	4	.....	Center Hall.....	8	.....
Cairo.....	T.	*	Moorhead.....	2	20.0	Emporium.....	8	.....
Chicago.....	2	.....	St. Paul.....	4	14.0	Erie.....	1	9.5
Peoria.....	4	6.5	Worthington.....	7	.....	Everett.....	6	.....
Pontiac.....	4	.....	Missouri.	.....	.....	Franklin.....	3	.....
Springfield.....	2	.....	Brunswick.....	4	.....	Greensboro.....	1	.....
White Hall.....	2	.....	Columbia.....	3	.....	Greenville.....	4	.....
Indiana.	.....	.....	Hannibal.....	3	.....	Hanover.....	1	.....
Bloomington.....	5	.....	Kansas City.....	3	*	Harrisburg.....	4	9.0
Evansville.....	0	↑	Maryville.....	6	.....	Huntingdon.....	5	.....
Fort Wayne.....	6	.....	St. Joseph.....	4	↑	Johnstown.....	5	.....
Indianapolis.....	2	.....	St. Louis.....	T.	↑	Meadville.....	3	.....
Terre Haute.....	2	8.0	Trenton.....	5	.....	Parkers Landing.....	4	.....
Winona Lake.....	6	.....	Unionville.....	8	.....	Philadelphia.....	T.	3.0
Iowa.	.....	.....	Montana.	.....	.....	Pittsburgh.....	T.	0.5
Albia.....	6	.....	Billings.....	1	.....	Ridgway.....	3	.....
Atlantic.....	6	.....	Havre.....	6	.....	Rosamond.....	2	.....
Charles City.....	4	.....	Helena.....	2	.....	Somerset.....	2	.....
Creston.....	6	.....	Kalispell.....	3	.....	Towanda.....	7	.....
Davenport.....	3	8.0	Miles City.....	T.	.....	Warren.....	5	.....
Des Moines.....	4	10.5	Missoula.....	8	.....	Williamsport.....	11	.....
Dubuque.....	3	8.0	Nebraska.	.....	.....	Rhode Island.	.....	.....
Estherville.....	7	.....	Lincoln.....	6	.....	Block Island.....	T.	*
Keokuk.....	4	8.5	North Platte.....	3	.....	Providence.....	T.	↑
Sioux City.....	4	10.0	Omaha.....	2	10.5	South Dakota.	.....	.....
Kansas.	.....	.....	Valentine.....	2	.....	Huron.....	2	17.0
Concordia.....	2	.....	Nevada.	.....	.....	Pierre.....	T.	10.5
Dodge City.....	2	.....	Reno.....	1	0.0	Rapid City.....	1	.....
Ellinwood.....	3	.....	Winnemucca.....	2	.....	Yankton.....	2	10.0
Iola.....	T.	5.0	New Hampshire.	.....	.....	Texas.	.....	.....
Topeka.....	3	.....	Bethlehem.....	3	.....	Amarillo.....	1	.....
Kentucky.	.....	.....	Concord.....	9	9.0	Utah.	.....	.....
Bowling Green.....	2	.....	Hanover.....	8	.....	Modena.....	1	.....
Eubank.....	4	.....	New Jersey.	.....	.....	Salt Lake City.....	2	.....
Louisville.....	T.	0.0	Cape May.....	T.	3.5	Vermont.	.....	.....
Maysville.....	1	.....	Phillipsburg.....	2	.....	Brattleboro.....	6	6.5
Mount Sterling.....	4	.....	Sandy Hook.....	T.	↑	Burlington.....	6	0.0
Williamsburg.....	2	.....	Trenton.....	1	7.0	Northfield.....	10	.....
Maine.	.....	.....	Tuckerton.....	1	.....	Virginia.	.....	.....
Bangor.....	4	12.0	New Mexico.	.....	.....	Cape Henry.....	1	0.0
Eastport.....	4	0.0	Santa Fe.....	2	.....	Danville.....	3	.....
Gardiner.....	6	6.0	New York.	.....	.....	Lyndhurst.....	4	.....
Greenville.....	9	17.5	Addison.....	8	.....	Norfolk.....	1	0.0
Lewiston.....	6	12.0	Albany.....	5	5.5	Richmond.....	3	0.0
Millinocket.....	12	.....	Binghamton.....	6	.....	Williamsburg.....	4	.....
Portland.....	7	0.0	Buffalo.....	7	5.0	Wytheville.....	8	.....
Maryland.	.....	.....	Canton.....	10	.....	Washington.	.....	.....
Baltimore.....	1	↑	Ithaca.....	8	.....	Spokane.....	4	.....
Princess Anne.....	1	.....	Lowville.....	48	.....	West Virginia.	.....	.....
Massachusetts.	.....	.....	Norwich.....	32	.....	Bayard.....	6	.....
Adams.....	8	.....	Opdensburg.....	14	.....	Burlington.....	5	.....
Boston.....	2	.....	Oswego.....	14	9.5	Elkins.....	3	2.5
Nantucket.....	T.	*	Poughkeepsie.....	4	.....	Fairmont.....	1	.....
Michigan.	.....	.....	Rochester.....	6	8.0	Parkersburg.....	1	↑
Alpena.....	5	9.0	Rome.....	12	.....	Rowlesburg.....	2	.....
Ann Arbor.....	8	.....	Saranac Lake.....	8	.....	Wisconsin.	.....	.....
Calumet.....	14	.....	Saratoga Springs.....	14	.....	Eau Claire.....	6	.....
Detroit.....	1	8.0	Syracuse.....	6	.....	Green Bay.....	5	8.0
Escanaba.....	1	11.5	North Dakota.	.....	.....	La Crosse.....	4	10.5
Grand Haven.....	6	.....	Bismarck.....	4	22.0	Madison.....	5	.....
Grand Rapids.....	6	.....	Devils Lake.....	3	.....	Medford.....	4	.....
Houghton.....	16	8.5	Williston.....	3	15.5	Milwaukee.....	4	0.0
Iron River.....	2	.....	Ohio.	.....	.....	New London.....	7	.....
Ironwood.....	5	.....	Ashland.....	4	.....	Sheboygan.....	6	.....
Lansing.....	4	.....	Canton.....	2	.....	Wyoming.	.....	.....
Ludington.....	8	8.5	Cincinnati.....	T.	↑	Cheyenne.....	T.	.....
Manistee.....	12	.....	Cleveland.....	T.	8.0	Lander.....	T.	.....
Marquette.....	2	3.5	Columbus.....	1	.....	Sheridan.....	T.	.....

*Shore ice. †Floating ice. ‡Ice gorged. §Ice held in gorge above. T. indicates trace.

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SNOW AND ICE BULLETIN.



NOTE.—This bulletin is issued on Tuesdays during the winter. It is based upon data from regular Weather Bureau and selected cooperative stations. Shaded portions represent area covered with snow; lines indicate depth, in inches. No attempt is made to indicate areas and depths that may exist at high altitudes in the Rocky Mountains, beyond those shown by reports from regular Weather Bureau stations. As far as practicable all reports of snow and ice are printed in the table.

WASHINGTON, D. C., January 5, 1915.

DEPTH OF SNOW.

The storm referred to in the last issue as central over the Mississippi Valley on Tuesday morning moved rapidly to the northeastward and 24 hours later was central in the lower St. Lawrence Valley. Considerable snow appears to have occurred in connection with this storm in the upper Mississippi Valley and Lake region and heavy rains over the Atlantic coast States. Aside from the above, but little snow occurred during the week, until near the end, when light falls accompanied a low-pressure area that moved from the upper Lake region to New England.

During the week there was a general decrease in the depth of snow over the southern portion of the area snow-covered at the end of the preceding week, and the southern limit of snow is now considerably farther to the northward. There has been a general increase of several inches in the depth over the Lake region during the week; elsewhere there has been little change in depths previously reported.

In the Mountain regions of the West mailed reports indicate that considerable snow has fallen in the mountains of California, Arizona, and New Mexico, and that it is well packed and in condition to furnish a good supply of water for irrigation during the coming crop growing season. Elsewhere in the Mountain regions there appears to have been little snow so far during the winter, and the amounts in the high ranges are much less than normal.

The very general covering of snow over the winter grain growing districts during the past few weeks is reported to have greatly benefited these crops, both by protecting the plants from the severe cold and by furnishing a supply of surface moisture which was much needed in some sections.

ICE IN RIVERS AND HARBORS.

The continuation of moderately cold weather during the past week over nearly the entire country caused a further increase in the amount of ice on the rivers and lakes of the northern and central districts.

The ice in the Missouri now ranges from 1 to 2 feet in thickness from Omaha northward, and somewhat less is reported from the Mississippi above Hannibal. The Ohio continues open, although floating ice is reported from several points. Some ice disappeared from the streams along the Atlantic coast south of the Hudson, but to the northward there was a general increase.

In the Lake region there was a very general increase of several inches, and the harbors are now mostly closed with ice from about 10 inches thick in the lower Lakes to 15 or 20 inches in the protected harbors of the upper Lakes.

Ice harvest is now in progress in all sections where ice usually forms, and large amounts are being gathered under favorable conditions.

The following special reports have been received:

Brattleboro, Vt., January 4.—The ice harvest has begun in the Connecticut River here, and the ice is of very good quality.
Albany, N. Y., January 5.—The snow in the Hudson Valley averages 7 inches in depth and in the Mohawk Valley 10 inches, the greatest depth reported being 20 inches at Trenton Falls. The ice in the Hudson River averages 7 inches and in the Mohawk 9 inches in thickness.
Binghamton, N. Y., January 5.—The snow in the upper Susquehanna Valley averages 8 inches in depth, in the Unadilla and Chenango 12 inches, and in the Tioughnioga 13 inches, the greatest depth reported being 16 inches at Hamilton.
Hannibal, Mo., January 4.—The channel of the Mississippi River continues open below the bridge.
Kansas City, Mo., January 4.—The Missouri River is closed 3 miles above the city, but is open at the gate. The ice is 10 inches in thickness in the neighboring lakes.

P. C. DAY, Climatologist and Chief of Division.

DEPTH OF SNOW AND THICKNESS OF ICE AT 8 P. M., JANUARY 4, 1915.

Stations.		Stations.		Stations.	
Snow.	Ice in rivers, harbors, etc.	Snow.	Ice in rivers, harbors, etc.	Snow.	Ice in rivers, harbors, etc.
Colorado.		Michigan—Cont'd.		Ohio.	
Grand Junction.....	1	Manistee.....	24	Ashland.....	3
Connecticut.		Marquette.....	9	Cleveland.....	T.
Hartford.....	1 9.0	Newberry.....	9	Dayton.....	T. 4.5
New Haven.....	T. 0.0	Port Huron.....	8 8.0	Marion.....	2
West Cornwall.....	4	Saginaw.....	9 10.0	New Bremen.....	1
Dist. of Columbia.		Sault Ste. Marie.....	16 6.0	Sandusky.....	2 11.0
Washington.....	0 *	Minnesota.		Tiffin.....	3
Idaho.		Angus.....	4	Toledo.....	5 7.5
Boise.....	T.	Duluth.....	3 21.0	Youngstown.....	1
Pocatello.....	2	Fergus Falls.....	4	Oregon.	
Illinois.		Fort Ripley.....	2 4	Baker.....	1
Cairo.....	0 †	Grand Meadow.....	6 6	Pennsylvania.	
Chicago.....	3	Hinckley.....	3	Clarion.....	4
Oregon.....	10	International Falls.....	4	Drifton.....	6
Peoria.....	4 8.0	Mankato.....	4	Erie.....	1 10.0
Springfield.....	T.	Milan.....	5	Franklin.....	3
Walnut.....	6	Minneapolis.....	3	Greenville.....	4
Indiana.		Moorhead.....	3 21.0	Harrisburg.....	2 10.0
Bloomington.....	2	Reeds.....	2	Huntingdon.....	3
Evansville.....	0 †	St. Paul.....	3 15.0	Indiana.....	2
Indianapolis.....	1	State Sanatorium.....	4	Johnstown.....	3
Knox.....	6	Missouri.		Meadville.....	3
La Fayette.....	2	Brunswick.....	T.	Parkers Landing.....	6
Richmond.....	1	Columbia.....	T.	Pittsburgh.....	T. 0.0
Terre Haute.....	0 11.0	Hannibal.....	1 9.0	Reading.....	T. 0.0
Winona Lake.....	4	Kansas City.....	T. †	Ridgway.....	4
Iowa.		St. Joseph.....	T.	Salisbury.....	T.
Albia.....	3	St. Louis.....	0 *	Seranton.....	1
Atlantic.....	4	Montana.		Somerseset.....	4
Boone.....	6	Havre.....	3	Sunbury.....	4
Carroll.....	2	Kalispell.....	T.	Towanda.....	4
Charles City.....	3	Miles City.....	T.	Warren.....	7
Creston.....	3	Missoula.....	8	Williamsport.....	7
Davenport.....	5 9.0	Nebraska.		Rhode Island.	
Des Moines.....	2 12.0	Guide Rock.....	3	Block Island.....	T. 0.0
Dubuque.....	7 11.0	Lincoln.....	T.	Narragansett Pier.....	T.
Estherville.....	6	North Platte.....	1	Providence.....	T. *
Forest City.....	6	Omaha.....	2 12.0	South Dakota.	
Iowa City.....	6	Valentine.....	T.	Heron.....	1 19.5
Keokuk.....	3 10.0	Nevada.		Pierre.....	T. 19.5
Sioux City.....	1 12.0	Reno.....	T. 0.0	Rapid City.....	T.
Kansas.		Winnemucca.....	1	Yankton.....	T. 12.0
Iola.....	0 5.0	New Hampshire.		Utah.	
Salina.....	1	Bethlehem.....	4	Modena.....	1
Topeka.....	T.	Concord.....	6 13.0	Salt Lake City.....	2
Kentucky.		Durham.....	6	Vermont.	
Lexington.....	T.	Keene.....	6	Brattleboro.....	7 10.0
Maine.		New Jersey.		Burlington.....	6 0.0
Bangor.....	T. 14.0	Cape May.....	0 4.0	Northfield.....	9
Eastport.....	T. 0.0	Trenton.....	0 7.0	St. Johnsbury.....	6
Gardiner.....	5 9.0	Tuckerton.....	T.	Virginia.	
Greenville.....	11 18.0	New Mexico.		Lynchburg.....	T. 0.0
Lewiston.....	7 11.5	Santa Fe.....	1	Wytheville.....	1
Millinocket.....	18	New York.		Washington.	
Portland.....	4 0.0	Albany.....	1 6.5	Spokane.....	5
Van Buren.....	5	Binghamton.....	4	Walla Walla.....	T.
Massachusetts.		Bouckville.....	11	West Virginia.	
Amherst.....	4	Buffalo.....	6 9.0	Bayard.....	1
Boston.....	T.	Canton.....	6	Elkins.....	0 *
Concord.....	4	Herkimer.....	15	Hinton.....	2
Fitchburg.....	7	Ithaca.....	6	Parkersburg.....	0 †
Nantucket.....	T.	Norwich.....	11	Wisconsin.	
Michigan.		Ogdensburg.....	13	Brodhead.....	15
Alpena.....	5 9.5	Oswego.....	12 10.5	Green Bay.....	6 10.0
Ann Arbor.....	6	Plattsburg.....	3	Hancock.....	8
Cadillac.....	20	Poughkeepsie.....	2	La Crosse.....	3 11.0
Calumet.....	14	Rochester.....	4 9.5	Madison.....	8
Detroit.....	5 11.0	Saranac Lake.....	6	Medford.....	5
Escanaba.....	3 15.0	Saratoga Springs.....	13	Medwaukee.....	3 0.0
Grand Haven.....	9	Syracuse.....	5	Sheboygan.....	5
Grand Rapids.....	7	Warwick.....	2	Viroqua.....	9
Harrisville.....	8	Watertown.....	14	Wausau.....	2
Iron River.....	3	North Dakota.		Wyoming.	
Ironwood.....	10	Bismarck.....	4 24.0	Lander.....	T.
Lansing.....	6	Williston.....	1 21.0	Yellowstone Park.....	T.
Ludington.....	9 9.5				

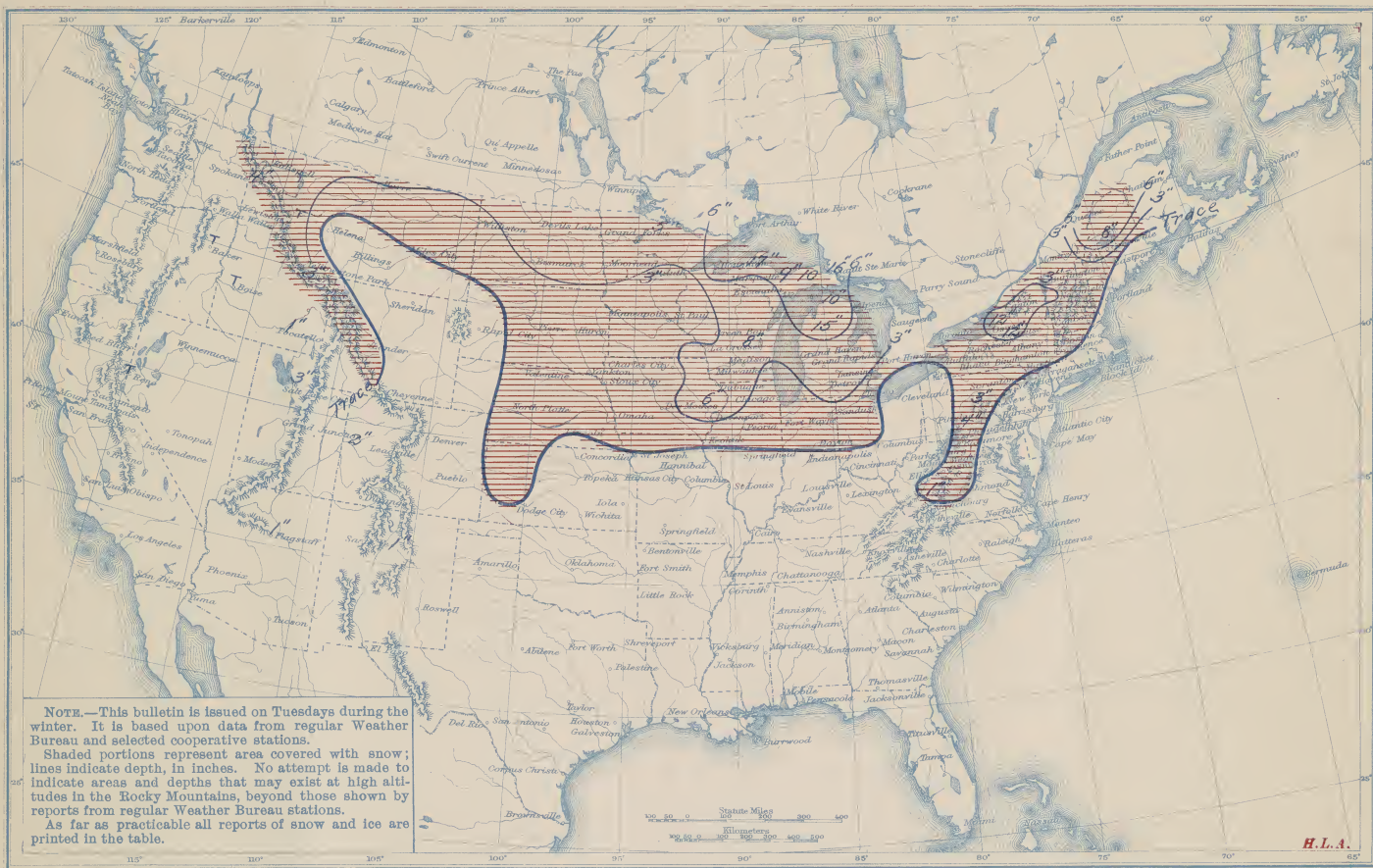
* Shore ice. † Floating ice. ‡ Ice gorged. T. indicates trace.

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RECEIVED
★ JAN 25 1915 ★
U. S. Department of Agriculture

U. S. DEPARTMENT OF AGRICULTURE,
WEATHER BUREAU.
CHARLES F. MARVIN, CHIEF.

SNOW AND ICE BULLETIN.



WASHINGTON, D. C., January 12, 1915.

DEPTH OF SNOW.

Unsettled weather developed in the western Mountain regions early in the week, and by Wednesday morning precipitation had overspread the central portions of the country from the Gulf to Canada, and during the following day or two it extended to practically all eastern districts. On account of the moderately high temperatures, however, the precipitation was in the form of rain in all except the more northern districts.

During the latter part of the week local snows occurred in the far western Mountain regions, but to the eastward fair weather prevailed until near the end. During Sunday and Monday a storm moved from the Southwest to northern Florida and thence to the middle Atlantic coast by Tuesday morning. General, and in many cases heavy, rains occurred in connection with this storm from the middle and lower Mississippi Valley eastward, and some snow is now falling in the lower Lake region, the Adirondack Mountains, and from central New York to northern New England.

Warmer weather and general rains have caused a considerable reduction in the snow depth during the past week, and the area now covered by appreciable amounts is much less than at the beginning of the week. From 2 to 4 inches have disappeared over the districts from Iowa and southern Minnesota eastward to the Lake region, and the loss has been somewhat greater from central Pennsylvania northward to New England.

There has been a slight increase in depth over portions of the upper Lake region and at a few other points. No general snows occurred during the week in the western Mountain districts, and the amounts stored in the high ranges are probably still far below the normal, save in portions of California, Arizona, and New Mexico.

Over the winter wheat districts the snow covering has largely disappeared, but the warmer weather and general rains have doubtless proved beneficial. Over the great cattle ranges the general absence of snow has been beneficial to the stock interests.

ICE IN RIVERS AND HARBORS.

No great variations in temperature occurred during the week just ended, and as a whole it was warmer than the average. As a result the ice thickness increased but little in any section, and there was a general decrease in the ice covering over the streams of the central portions of the country, especially in the Atlantic coast States south of New England, and locally in the Lake region.

But little change occurred in the streams of the upper Missouri and upper Mississippi watersheds, the main streams and tributaries continuing heavily ice covered. The Ohio continues open and most of the ice has passed out of the lower portions of the rivers of the Atlantic coast south of the Hudson. In New England there was a very general but slight increase, but in the lower Lakes there is now somewhat less ice than at the beginning of the week, although the harbors are still ice bound, as well as those in the upper Lakes.

Large amounts of ice have already been harvested in the rural districts and cutting on the large fields is progressing, although temporarily delayed by rain and warm weather near the middle of the week.

The following special reports have been received:

Brattleboro, Vt., January 11.—There is plenty of snow on the hills and mountains in this vicinity.

Hartford, Conn., January 12.—The snow in the upper Connecticut Valley averages 2 inches in depth and the lower valley is bare. The ice in the river remains practically unchanged, though harvesting was suspended on account of high temperature and stormy weather on the 7th.

Albany, N. Y., January 12.—The snow yesterday averaged 8 inches in depth in the upper Hudson Valley and 4 inches in the Mohawk Valley, but about 3 inches have fallen in this vicinity since reports were made. The ice averages 8 inches in thickness in both rivers.

Hannibal, Mo., January 11.—The channel of the Mississippi River continues open below the bridge.

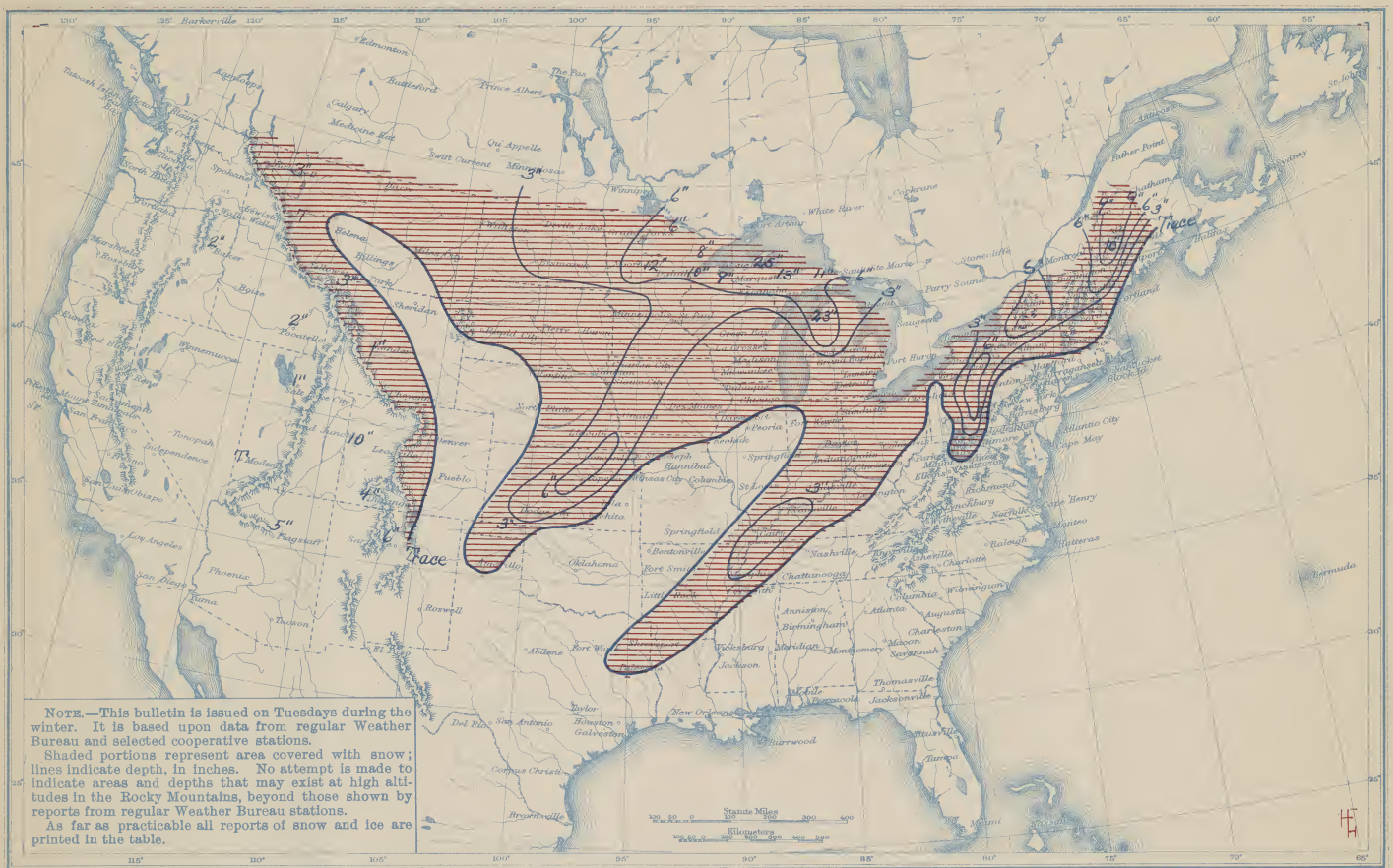
P. O. DAY, Climatologist and Chief of Division.

DEPTH OF SNOW AND THICKNESS OF ICE AT 8 P. M., JANUARY 11, 1915.

Stations.	Snow.	Ice in rivers, harbors, etc.	Stations.	Snow.	Ice in rivers, harbors, etc.	Stations.	Snow.	Ice in rivers, harbors, etc.
Arizona.	Inches	Inches	Michigan—Cont'd.	Inches	Inches	New York—Cont'd.	Inches	Inches
Flagstaff.....	1	.....	Houghton.....	16	8.5	Oswego.....	4	10.0
Colorado.	.....	.....	Iron Mountain.....	5	.....	Rochester.....	T.	↑
Grand Junction.....	2	.....	Iron River.....	3	.....	Rome.....	12	.....
Connecticut.	.....	.....	Ironwood.....	14	.....	Watertown.....	3	.....
Hartford.....	0	8.0	Lansing.....	2	.....	North Dakota.	.....	.....
West Cornwall.....	T.	.....	Ludington.....	4	10.5	Bismarck.....	4	26.0
Idaho.	.....	.....	Mackinaw.....	10	.....	Devils Lake.....	3	.....
Boise.....	T.	.....	Manistee.....	12	.....	Williston.....	2	21.5
Pocatello.....	1	.....	Marquette.....	9	.....	Ohio.	.....	.....
Illinois.	.....	.....	Newberry.....	10	.....	Ashland.....	T.	.....
Bement.....	T.	.....	Port Huron.....	4	9.0	Cleveland.....	0	8.0
Bloomington.....	T.	.....	Rock.....	9	.....	Columbus.....	T.	.....
Chicago.....	1	.....	Saginaw.....	3	10.0	Dayton.....	T.	*
Hoopeston.....	T.	.....	Sault Ste. Marie.	16	8.5	Sandusky.....	0	11.0
Macomb.....	3	.....	Minnesota.	.....	.....	Tiffin.....	T.	.....
Oregon.	7	.....	Angus.....	4	.....	Toledo.....	T.	6.0
Peoria.....	T.	8.5	Collegeville.....	T.	.....	Wauson.....	4	.....
Pontiac.....	1	.....	Duluth.....	1	23.0	Oregon.	.....	.....
Springfield.....	T.	.....	Fergus Falls.....	3	.....	Baker.....	T.	.....
Walnut.....	5	.....	Fort Ripley.....	2	.....	Pennsylvania.	.....	.....
Indiana.	.....	.....	Grand Meadow.....	3	.....	Center Hall.....	3	.....
Fort Wayne.....	T.	.....	Hinckley.....	T.	.....	Cresson.....	4	.....
Knox.....	2	.....	International Falls	5	.....	Drifton.....	T.	.....
La Fayette.....	T.	.....	Mankato.....	T.	.....	Erie.....	0	9.0
Marion.....	T.	.....	Milan.....	2	.....	Harrisburg.....	T.	0.0
Terre Haute.....	0	11.5	Minneapolis.....	T.	.....	Johnsonburg.....	2	.....
Iowa.	.....	.....	Moorhead.....	4	22.0	Johnstown.....	T.	.....
Atlantic.....	T.	.....	St. Paul.....	T.	12.0	Sunbury.....	T.	.....
Boone.....	T.	.....	State Sanatorium.	2	.....	Williamsport.....	2	.....
Charles City.....	1	.....	Winton.....	4	.....	Rhode Island.	.....	.....
Creston.....	1	.....	Worthington.....	T.	.....	Providence.....	0	↑
Davenport.....	1	11.0	Missouri.	.....	.....	South Dakota.	.....	.....
Des Moines.....	T.	12.5	Hannibal.....	0	9.0	Huron.....	T.	19.0
Dubuque.....	4	12.5	Kansas City.....	0	.....	Pierre.....	T.	15.0
Estherville.....	1	.....	St. Joseph.....	T.	.....	Yankton.....	T.	12.0
Iowa City.....	6	.....	Springfield.....	T.	.....	Utah.	.....	.....
Keokuk.....	T.	11.5	Unionville.....	1	.....	Salt Lake City.....	3	.....
New Hampton.....	2	.....	Montana.	.....	.....	Vermont.	.....	.....
Sioux City.....	T.	12.0	Havre.....	3	.....	Brattleboro.....	2	12.0
Kansas.	.....	.....	Kalispell.....	T.	.....	Burlington.....	T.	0.0
Dodge City.....	T.	.....	Miles City.....	T.	.....	Northfield.....	3	.....
Maine.	.....	.....	Missoula.....	7	.....	St. Johnsbury.....	T.	.....
Bangor.....	0	15.0	Nebraska.	.....	.....	Virginia.	.....	.....
Cornish.....	2	.....	Kearney.....	T.	.....	Lyneburg.....	T.	0.0
Gardiner.....	0	8.0	Lincoln.....	T.	.....	Staunton.....	T.	.....
Greenville.....	8	20.0	McCook.....	1	.....	Washington.	.....	.....
Leviston.....	T.	12.0	North Platte.....	T.	.....	Spokane.....	4	.....
Millinocket.....	8	.....	Omaha.....	T.	11.0	West Virginia.	.....	.....
Van Buren.....	T.	.....	Valentine.....	T.	.....	Hinton.....	1	.....
Maryland.	.....	.....	Nevada.	.....	.....	Parkersburg.....	0	↑
Oakland.....	T.	.....	Reno.....	T.	0.0	Wisconsin.	.....	.....
Massachusetts.	.....	.....	New Hampshire.	.....	.....	Brodhead.....	8	.....
Adams.....	T.	.....	Bethlehem.....	T.	.....	Eau Claire.....	1	.....
Amherst.....	T.	.....	Concord.....	T.	14.0	Green Bay.....	2	10.0
Concord.....	T.	.....	Keene.....	T.	.....	Hancock.....	8	.....
Fitchburg.....	T.	.....	New Mexico.	.....	.....	La Crosse.....	1	15.0
Michigan.	.....	.....	Santa Fe.....	1	.....	Madison.....	4	.....
Alpena.....	9.5	.....	New York.	.....	.....	Medford.....	3	.....
Ann Arbor.....	4	.....	Albany.....	T.	5.5	Milwaukee.....	1	0.0
Battle Creek.....	5	.....	Binghamton.....	T.	.....	New London.....	4	.....
Cadillac.....	15	.....	Buffalo.....	1	10.0	Sheboygan.....	4	.....
Calumet.....	17	.....	Canton.....	T.	.....	Viroqua.....	2	.....
Detroit.....	2	10.0	Herkimer.....	2	.....	Wausau.....	2	.....
Escanaba.....	4	16.0	Ithaca.....	T.	.....	Wyoming.	.....	.....
Grand Haven.....	4	.....	Lowville.....	T.	.....	Lander.....	T.	.....
Grand Rapids.....	5	.....	Norwich.....	2	.....	Yellowstone Park.	T.	.....
Harrisville.....	8	.....	Ogdensburg.....	1	.....		

* Shore ice. † Floating ice. ‡ Ice gorged. § Ice gorged above here. T. indicates trace.

SNOW AND ICE BULLETIN.



WASHINGTON, D. C., January 19, 1915.

DEPTH OF SNOW.

The storm referred to in last week's issue as prevailing off the middle Atlantic coast moved to southern New England by Wednesday, accompanied by heavy rains, high winds, and some snow in the interior portions of New York and New England. At the same time stormy conditions prevailed over the Plateau and Pacific coast States, and rain or snow was fairly general for several days in those districts.

Toward the end of the week stormy conditions developed in the far Southwest, and by Saturday morning a disturbance of marked intensity was central near the middle Mississippi Valley, and rain or snow was falling over much of the country from the Rocky Mountains eastward to the Mississippi Valley. By Sunday this storm had moved to the upper Lakes, and another had developed in the east Gulf States, and rain or snow was general during the following 24 hours over much of the eastern part of the country.

At the present writing another storm has moved from the Canadian Northwest to the upper Mississippi Valley, and rains or snows have occurred over much of the country from the Plains region eastward, with prospects of continued snow in the Lake region.

During the week just closed there has been an increase in the snow depth over portions of New England and New York, in portions of the upper Lake region, and thence westward to the Dakotas, and from Iowa southwestward to southern Kansas. Portions of the Ohio and middle Mississippi valleys which were bare last week are now covered with several inches of snow. Likewise, at the lower elevations of the Mountain and Plateau districts of the West there is now more snow than was reported last week, and it is probable that the depths at the higher elevations have been considerably increased as a result of the storms of the early and middle portions of the week.

No severe cold occurred over the winter grain-growing districts during the week, and considerable portions are again snow covered as a result of the falls of the last few days.

On the great stock ranges no large amount of snow has fallen so far this winter, which, with the general absence of severe cold, has permitted continued grazing and obviated the necessity for extensive feeding.

ICE IN RIVERS AND HARBORS.

Continued warm weather for the season of the year was the rule throughout the week in practically all portions of the country from the Rocky Mountains eastward. To the westward of the mountains temperatures were likewise moderately high until toward the latter part of the week, when somewhat colder weather prevailed.

As a result of the continued warmth considerable ice disappeared from the streams of the middle Mississippi Valley and thence eastward to the Atlantic. Small additional amounts of ice formed over the streams of the upper Missouri watershed, in the upper Lake region, and in northern New England; elsewhere the amounts diminished or remained as previously reported.

The Missouri and its tributaries continue closed from Omaha northward, and the Mississippi is likewise closed from about Hannibal to its source. No ice is reported from the Ohio or its tributaries, and the warm and heavy rains of the past week have broken up and carried out most of the ice from the streams of the Atlantic coast from the Hudson southward.

The condition of the ice on the streams and lakes of New England remains about as reported last week, and similar conditions prevail in the upper Lake region, but over the lower Lakes there is now considerably less ice than was reported last week.

The following special reports have been received:

Hartford, Conn., January 19.—The ice in the Farmington River, also between its mouth and Long Island Sound in the Connecticut River, is passing out without any damage.

Albany, N. Y., January 19.—The snow in the Hudson Valley ranges from a trace at Albany to 8 inches in depth at Corinth, and in the Mohawk Valley averages 2 inches in depth. The ice in the Hudson River is honeycombed and in the Mohawk River it has broken up in many places and has formed gorges.

P. C. DAY, Climatologist and Chief of Division.

DEPTH OF SNOW AND THICKNESS OF ICE AT 8 P. M., JANUARY 18, 1915.

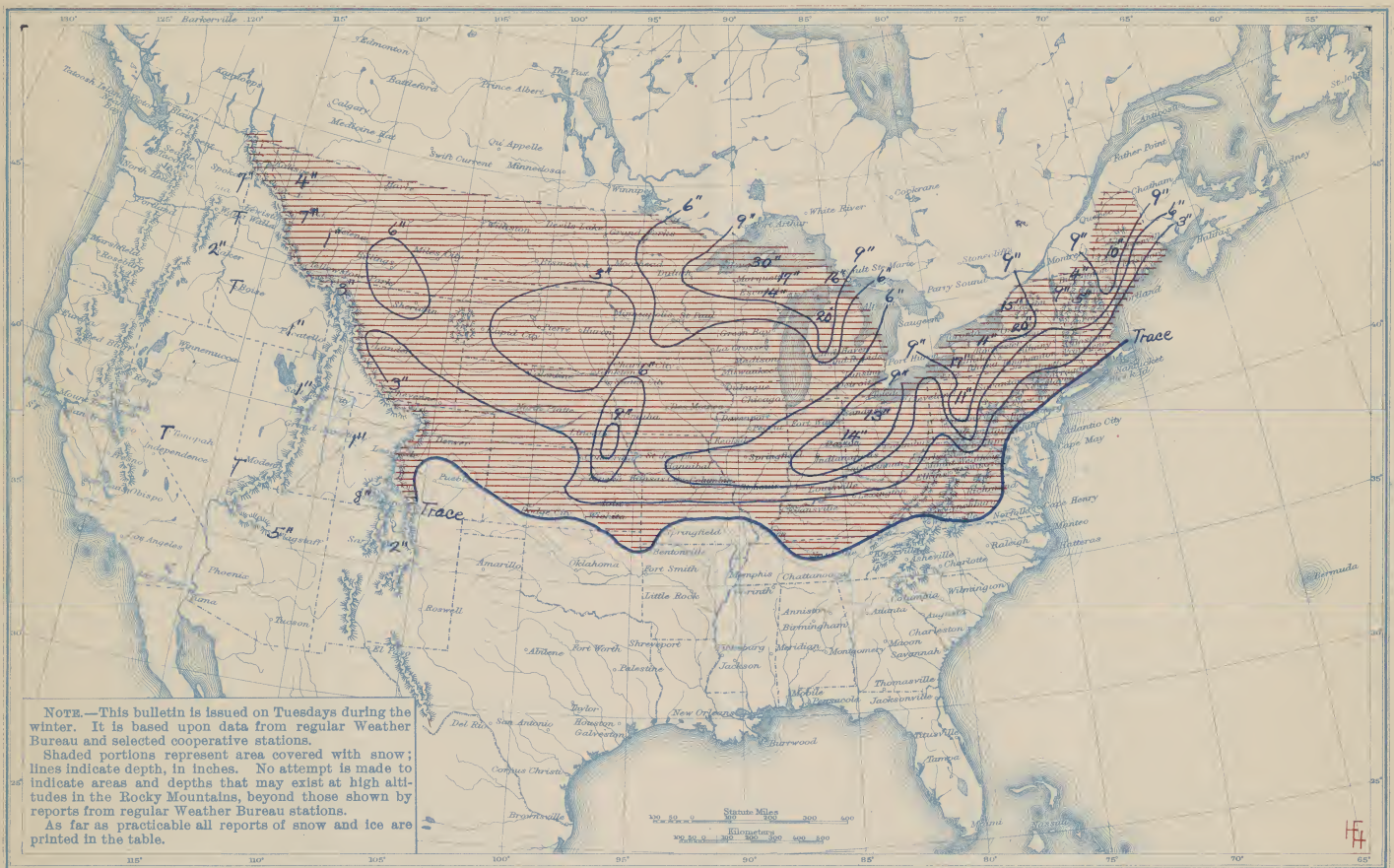
Stations.		Stations.		Stations.	
Snow.	Ice in rivers, harbors, etc.	Snow.	Ice in rivers, harbors, etc.	Snow.	Ice in rivers, harbors, etc.
Arizona.	Inches	Inches	Michigan—Cont'd.	Inches	Inches
Flagstaff.....	5	.....	Escanaba.....	2	15.0
Arkansas.			Grand Haven.....	1	.....
Little Rock.....	T.	0.0	Grand Rapids.....	4	.....
Colorado.			Harrisville.....	25	7.0
Denver.....	T.	.....	Iron Mountain.....	8	.....
Durango.....	4	.....	Iron River.....	9	.....
Grand Junction.....	10	.....	Lansing.....	1	.....
Pueblo.....	T.	.....	Ludington.....	1	10.5
Connecticut.			Manitowish.....	23	.....
Hartford.....	0	4.0	Manistee.....	6	.....
Idaho.			Marquette.....	13	*
Pocatello.....	2	.....	Newberry.....	11	.....
Illinois.			Port Huron.....	2	9.0
Cairo.....	4	0.0	Saginaw.....	T.	8.0
Chicago.....	T.	.....	St. Ignace.....	3	.....
Oregon.....	4	.....	Sault Ste. Marie.....	16	12.0
Peoria.....	0	7.5	Minnesota.		
Indiana.			Angus.....	2	.....
Evansville.....	7	0.0	Collegeville.....	T.	.....
Fort Wayne.....	1	.....	Duluth.....	10	24.5
Indianapolis.....	5	.....	Fergus Falls.....	7	.....
Marion.....	3	.....	Fort Ripley.....	3	.....
Mount Vernon.....	2	.....	Grand Meadow.....	4	.....
Paoli.....	2	.....	Hinckley.....	5	.....
Terre Haute.....	1	*	International Falls.....	6	.....
Iowa.			Mankato.....	7	.....
Atlantic.....	4	.....	Milan.....	2	.....
Boone.....	2	.....	Minneapolis.....	6	.....
Charles City.....	3	.....	Moorhead.....	5	22.5
Creston.....	1	.....	Reeds.....	4	.....
Davenport.....	T.	6.0	Roseau.....	5	.....
Des Moines.....	T.	12.5	St. Paul.....	4	12.0
Dubuque.....	2	10.5	State Sanatorium.....	12	.....
Estherville.....	5	.....	Wintona.....	8	.....
Iowa City.....	2	.....	Worthington.....	2	.....
New Hampton.....	T.	.....	Mississippi.		
Pocahontas.....	6	.....	Corinth.....	T.	.....
Sioux City.....	1	14.5	Missouri.		
Kansas.			Hannibal.....	0	8.0
Concordia.....	1	.....	Kansas City.....	0	+
Dodge City.....	4	.....	St. Joseph.....	T.	+
Ellinwood.....	6	.....	Unionville.....	T.	.....
Manhattan.....	14	.....	Montana.		
Marion.....	6	.....	Billings.....	T.	.....
Medicine Lodge.....	T.	.....	Kalispell.....	3	.....
Salina.....	3	.....	Miles City.....	T.	.....
Topeka.....	4	.....	Missoula.....	7	.....
Wakeeney.....	T.	.....	Nebraska.		
Wichita.....	T.	.....	Alliance.....	T.	.....
Kentucky.			Auburn.....	7	.....
Lexington.....	T.	.....	Central City.....	T.	.....
Louisville.....	2	0.0	Durham.....	T.	.....
Louisiana.			Lincoln.....	4	.....
Shreveport.....	T.	0.0	Oakdale.....	T.	.....
Maine.			Omaha.....	5	13.0
Bangor.....	0	15.0	Valentine.....	T.	.....
Cornish.....	6	.....	Wisner.....	T.	.....
Gardiner.....	3	9.0	New Hampshire.		
Greenville.....	10	22.5	Bethlehem.....	1	.....
Lewiston.....	6	12.5	Concord.....	T.	12.0
Millinocket.....	10	.....	Hanover.....	4	.....
Van Buren.....	T.	.....	Keene.....	T.	.....
Massachusetts.			New Mexico.		
Amherst.....	T.	.....	Santa Fe.....	6	.....
Concord.....	T.	.....	New York.		
Fitchburg.....	T.	.....	Albany.....	T.	2
Mansfield.....	T.	.....	Beaver River.....	15	.....
Michigan.			Binghamton.....	T.	.....
Alpena.....	2	9.5	Brockville.....	4	.....
Ann Arbor.....	1	.....	Buffalo.....	T.	9.0
Battle Creek.....	2	.....	Canton.....	T.	.....
Big Rapids.....	10	.....	Corinth.....	2	.....
Bloomington.....	T.	.....	Herkimer.....	8	.....
Calumet.....	29	.....		
Detroit.....	T.	7.5			

*Shore ice. †Floating ice. ‡Ice gorged. §Ice inaccessible. T. indicates trace.

U. S. DEPARTMENT OF AGRICULTURE,
WEATHER BUREAU.

CHARLES F. MARVIN, CHIEF.

SNOW AND ICE BULLETIN.



WASHINGTON, D. C., January 26, 1915.

DEPTH OF SNOW.

The week as a whole was stormy over much of the country from the Mississippi Valley eastward, and heavy precipitation occurred in the Gulf and Atlantic coast States and portions of the Ohio Valley and Lake region at the beginning and again near the end of the week. Snow occurred over most northern and central districts at frequent intervals, but the individual falls were not heavy except in portions of the Ohio and middle Mississippi valleys, along the coast of Maine, and locally in the lower Missouri Valley and the Rocky Mountain districts. The heaviest general snowfall probably occurred in connection with a storm that moved from the central Rocky Mountain region southeastward to the Mississippi Valley, and thence to the Lake region, from the 21st to the 23d. During this time snow fell over nearly all central and northern districts from the Rocky Mountains eastward, except near the middle Atlantic coast.

There has been an increase over the depth reported at the end of the preceding week of from 4 to 12 inches from the middle Mississippi Valley eastward over the northern drainage of the Ohio and in the lower Lake region, and somewhat smaller increases occurred locally in Montana and Wyoming. In the Rocky Mountain region it is probable considerable snow fell over the eastern slopes from Colorado northward, but elsewhere in the mountain districts of the West there was probably little snowfall during the week.

Over much of the winter grain-growing regions the ground was snow covered during the week, and crops were well protected from the unfavorable changes in temperature. However, large portions of the great stock ranges are now snow covered.

ICE IN RIVERS AND HARBORS.

Temperature changes were frequent during the week, and on the whole it was colder than the average over much of the country. The periods of cold were not severe, however, until near the end of the week, when high pressure moved into the Missouri Valley, and a cold wave of considerable severity overspread that district.

Compared with the preceding week there has been a general increase in the ice thickness at all points where it was then reported, the increase being quite pronounced in the streams of the middle Mississippi Valley and in some of the northern tributaries of the Ohio. The Missouri and Mississippi rivers continue heavily covered in their upper courses, as do also their northern tributaries.

Some ice is now reported in the upper portions of the Ohio, and considerable has formed on some of its northern tributaries. The main streams of the Atlantic coast from the Hudson southward continue free of ice, and slight decreases are recorded at points in New England.

The harbors of the Great Lakes remain closed as a rule, the ice ranging from 8 to 12 inches thick in the lower Lakes to about twice that thickness in the upper Lakes.

The following special reports have been received:

Hartford, Conn., January 26.—The depth of snow in the Connecticut Valley averages 6 inches, ranging from 1 inch near Long Island Sound to 8 inches in the upper valley. The river remains closed above Turners Falls.

Albany, N. Y., January 26.—The depth of snow in the Hudson Valley ranges from a trace in the lower portion to 10 inches at Thurman, and in the Mohawk Valley averages 5 inches. In the Hudson River the ice averages 7 inches thick, but the river is open at Troy and Albany. The Mohawk River is mostly open. **Binghamton, N. Y., January 26.**—The depth of snow in the upper Susquehanna Valley averages 2 inches, in the Unadilla and Chenango 3 inches, and in the Troughnoga 6 inches, the greatest depth reported being 8 inches at Cooperstown.

Pittsburgh, Pa., January 25.—There has been a decided increase in the amount of snow on the ground over the watersheds of western Pennsylvania. The depth over the Allegheny watershed ranges from 4 to 9 inches, and in the eastern mountains from 6 to 15 inches, while lesser depths are reported from the Monongahela watershed. The water equivalent of the snow is unusually high.

P. C. DAY, Climatologist and Chief of Division.

DEPTH OF SNOW AND THICKNESS OF ICE AT 8 P. M., JANUARY 25, 1915.

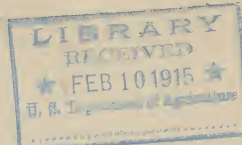
Stations.		Stations.		Stations.	
Snow.		Snow.		Snow.	
Inches		Inches		Inches	
Arizona.		Michigan—Cont'd.		Ohio—Cont'd.	
Flagstaff.	5	Marquette.	17	Cleveland.	9
Durango.	8	Newberry.	12	Columbus.	10
Grand Junction.	1	Port Huron.	8	Dayton.	14
Connecticut.		Saginaw.	2	Marion.	11
Hartford.	1	Sault Ste. Marie.	16	Philos.	6
New Haven.	1	Minnesota.		Sandusky.	12
West Cornwall.	8	Duluth.	9	Tiffin.	13
Idaho.		Fort Ripley.	4	Toledo.	8
Lewiston.	1	Hinckley.	6	Wauecon.	9
Pocatello.	T.	International Falls.	6	Waverly.	4
Illinois.		Mankato.	9	Oregon.	
Cairo.	0	Minneapolis.	6	Baker.	2
Chicago.	4	Moorhead.	5	Pennsylvania.	
Peoria.	4	Reeds.	6	Drifton.	4
Springfield.	6	St. Paul.	6	Emporium.	10
White Hall.	6	State Sanatorium.	8	Erie.	5
Indiana.		Missouri.		Everett.	8
Bloomington.	11	Brunswick.	7	Franklin.	6
Evansville.	3	Columbia.	4	Greenville.	5
Fort Wayne.	7	Hannibal.	7	Harrisburg.	2
Indianapolis.	12	Ironton.	1	Huntingdon.	0
Knox.	6	Kansas City.	2	Indiana.	4
La Fayette.	8	Rolla.	3	Lawrenceville.	8
Paoli.	6	St. Joseph.	3	Pittsburgh.	4
Terre Haute.	8	St. Louis.	6	Ridgway.	5
Iowa.		Montana.		Scranton.	1
Albia.	2	Billings.	7	Somerset.	2
Boone.	4	Havre.	4	Stroudsburg.	1
Charles City.	3	Helena.	1	Sunbury.	2
Davenport.	3	Kalispell.	4	Towanda.	3
Des Moines.	2	Miles City.	5	Warren.	5
Dubuque.	4	Missoula.	7	Rhode Island.	
Iowa City.	4	Nebraska.		Providence.	1
Keokuk.	4	Alliance.	4	South Dakota.	
Sioux City.	2	Auburn.	9	Huron.	1
Kansas.		Broken Bow.	6	Pierre.	T.
Concordia.	1	Lincoln.	9	Rapid City.	3
Ellinwood.	3	North Platte.	2	Yankton.	T.
Iola.	2	Omaha.	7	Tennessee.	
Manhattan.	8	Valentine.	2	Nashville.	1
Topeka.	2	New Hampshire.		Texas.	
Kentucky.		Bethlehem.	4	Dallas.	T.
Greensburg.	1	Hanover.	5	El Paso.	T.
Louisville.	2	New Mexico.		Fort Worth.	T.
Maysville.	8	Roswell.	T.	Palestine.	T.
Maine.		Santa Fe.	2	Vermont.	
Bangor.	5	New York.		Brattleboro.	8
Cornish.	6	Addison.	13	Burlington.	3
Eastport.	1	Albany.	T.	Northfield.	9
Gardiner.	4	Beaver River.	20	St. Johnsbury.	4
Greenville.	10	Binghamton.	1	Virginia.	
Lewiston.	7	Bouckville.	7	Richmond.	1
Millinocket.	11	Buffalo.	17	Staunton.	1
Portland.	14	Cooperstown.	8	Washington.	
Massachusetts.		Herkimer.	5	Spokane.	7
Amherst.	3	Ithaca.	7	West Virginia.	
Boston.	2	Lowville.	16	Bayard.	1
Fitchburg.	2	Malone.	9	Burlington.	2
Michigan.		Norwich.	6	Parkersburg.	1
Alpena.	2	Ogdensburg.	15	Rowlesburg.	2
Ann Arbor.	8	Oswego.	11	Wisconsin.	
Battle Creek.	5	Poughkeepsie.	2	Ashland.	9
Cadillac.	8	Rochester.	11	Green Bay.	2
Detroit.	10	Rome.	6	Hancock.	5
Escanaba.	10	Saratoga Springs.	6	La Crosse.	3
Grand Haven.	10	Syracuse.	4	Madison.	4
Grand Rapids.	2	Watertown.	10	Millwaukee.	4
Houghton.	30	North Dakota.		New London.	5
Iron River.	11	Bismarck.	5	Rhineland.	12
Lansing.	8	Devils Lake.	5	Wausau.	3
Ludington.	4	Williston.	2	Wyoming.	
Mackinaw.	8	Ohio.		Lander.	2
Mancelona.	20	Canton.	6	Sheridan.	8
		Cincinnati.	7	Yellowstone Park.	3

* Shore ice.

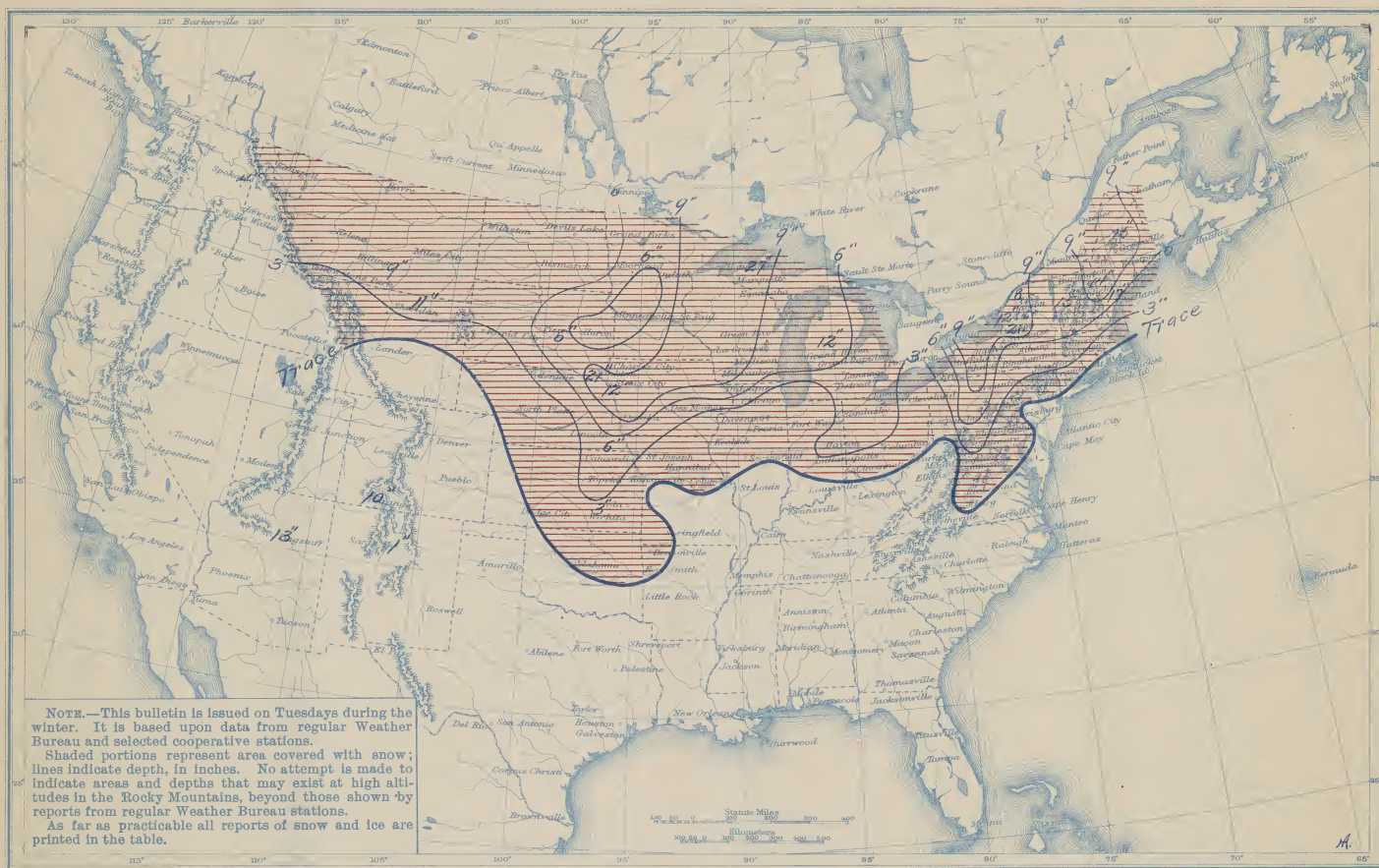
† Floating ice.

‡ Ice gorged.

T. indicates trace.



SNOW AND ICE BULLETIN.



WASHINGTON, D. C., February 2, 1915.

DEPTH OF SNOW.

Light snows occurred locally during the early and middle portions of the week over the northern districts and in the Mountain regions of the West, otherwise precipitation during these periods was light.

By Thursday precipitation set in over the Pacific coast, and during the following day or two it overspread much of the Mountain and Plateau districts with unusually heavy falls of rain in southern California and southwestern Arizona, and probably heavy snow in the Mountain districts of those and the adjoining States.

By Sunday the western storm center had advanced to Oklahoma, and heavy rains were general over much of the central valleys and Gulf States, with snow in the Lake region and generally to the westward. During the following 24 hours the storm moved slowly to the lower Missouri Valley, and the precipitation area extended to the Atlantic coast, with heavy rains in the Ohio Valley and Gulf States, and some heavy snows at points in the lower Missouri and upper Mississippi valleys.

At this writing rains and snows continue over the eastern districts and another storm has overspread the Pacific coast States, with heavy rains at the low elevations and probably heavy snows in the adjoining mountains.

During the week there was a general increase in the depth of the snow cover over the northern districts from the Mississippi Valley eastward, except in portions of the Lake region; and in the mountains of the Southwest there were probably some heavy falls.

In the Ohio and upper Mississippi valleys and portions of the lower Lake region the considerable body of snow on the ground at the beginning of the week melted rapidly under the influence of the heavy rains of the past few days, and the rivers of that section are now rising rapidly with prospects of serious floods, especially in the Ohio and some of its northern tributaries.

Large portions of the winter grain-growing regions continued snow covered during the cold weather of the early part of the week.

ICE IN RIVERS AND HARBORS.

Early in the week the severest cold wave of the winter, to date, overspread the central valleys and Northwest, continuing until after the middle of the week and extending eastward, but losing much of its severity as it approached the Atlantic coast, except in the more northern districts, where some unusually low temperatures occurred.

Following the cold of the early part of the week warmer weather set in over the far West about Friday and gradually overspread the Mountain regions, reaching the central valleys and eastern districts during the closing days of the week, at which time moderate temperatures were prevalent in all portions of the country.

Due to the cold of the early part of the week moderate increases in ice thickness occurred over nearly all northern lakes and rivers.

In the Missouri the river is gorged at St. Joseph and heavily ice-covered from thence to its source; likewise in the Mississippi ice is reported as far south as Cairo, and the upper portions of the river continue ice-bound.

Practically no ice is reported in the Ohio and no additional ice has formed on the main streams of the Atlantic coast, south of the Hudson. Slight increases occurred in the ice thickness on the rivers and lakes of New England, and similar conditions are reported from the Great Lakes, the harbors of which continue closed.

The following special reports have been received:

Hartford, Conn., February 2.—The depth of snow in the Connecticut Valley averages 8 inches, ranging from 1 inch along Long Island Sound to 11 inches at White River Junction. The ice in the upper river has gained in thickness.

Pittsburgh, Pa., February 1.—The depth of snow in western Pennsylvania decreased until Saturday night, when snow set in, from 1 to 3 inches falling by Sunday morning. Rain followed, becoming heavy, and the snow is now melting, while the rivers are rising quite rapidly.

Yankton, S. Dak., February 1.—The 24-hour snowfall here from noon yesterday to noon to-day was 20 inches, the heaviest on record. The snow is considerably drifted and travel on eastern roads is impeded.

P. C. DAY, Climatologist and Chief of Division.

DEPTH OF SNOW AND THICKNESS OF ICE AT 8 P. M., FEBRUARY 1, 1915.

Stations.		Stations.		Stations.	
Snow.		Snow.		Snow.	
Inches	Ice in rivers, harbors, etc.	Inches	Ice in rivers, harbors, etc.	Inches	Ice in rivers, harbors, etc.
Arizona.		Massachusetts—C'd		New York—Cont'd.	
Flagstaff.....	18	Concord.....	3	Oswego.....	12
Arkansas.		Fitchburg.....	3	Plattsburg.....	6
Bentonville.....	1	Mansfield.....	3	Poughkeepsie.....	2
Fort Smith.....	T. 0.0	Michigan.		Rochester.....	9
Colorado.		Alpena.....	2	Rome.....	12
Durango.....	10	Battle Creek.....	12	Saranac Lake.....	10
Connecticut.		Big Rapids.....	4	Saratoga Springs.....	5
Hartford.....	4	Detroit.....	4	Syracuse.....	4
New Haven.....	1	Escanaba.....	8	Watertown.....	12
West Cornwall.....	4	Grand Haven.....	6	North Dakota.	
Dist. of Columbia.		Grand Rapids.....	5	Bismarck.....	5
Washington.....	T. 0.0	Harrisville.....	5	Devils Lake.....	3
Idaho.		Houghton.....	27	Williston.....	2
Lewiston.....	0	Lansing.....	4	Ohio.	
Illinois.		Port Huron.....	4	Ashland.....	8
Bement.....	T.	Saginaw.....	6	Canton.....	1
Cairo.....	0	Minnesota.		Cincinnati.....	1
Chicago.....	1	Angus.....	4	Cleveland.....	1
Macon.....	1	Collegeville.....	2	Columbus.....	2
McComb.....	1	Fergus Falls.....	9	Dayton.....	4
Oregon.....	7	Fort Ripley.....	5	Marion.....	6
Peoria.....	T. 7.5	Grand Meadow.....	9	New Bremen.....	1
Pontiac.....	1	International Falls.....	6	Philo.....	1
Springfield.....	T.	Mankato.....	10	Sandusky.....	3
Walnut.....	2	Milan.....	8	Tiffin.....	3
White Hall.....	T.	Minneapolis.....	8	Toledo.....	5
Indiana.		Moorhead.....	6	Wauseon.....	4
Bloomington.....	1	Reeds.....	8	Waverly.....	T.
Fort Wayne.....	3	St. Paul.....	9	Oklahoma.	
Indianapolis.....	4	State Sanatorium.....	7	Oklahoma.....	T.
Knox.....	1	Wiley.....	10	Pennsylvania.	
La Fayette.....	T.	Worthington.....	6	Coatesville.....	1
Marion.....	4	Missouri.		Drifton.....	5
Terre Haute.....	0	Columbia.....	T.	Emporium.....	10
Winona Lake.....	2	Hannibal.....	T.	Erie.....	1
Iowa.		Kansas City.....	T.	Harrisburg.....	1
Albia.....	1	Maryville.....	5	Huntingdon.....	5
Atlantic.....	10	St. Joseph.....	T.	Lawrenceville.....	10
Boone.....	9	St. Louis.....	T.	Scranton.....	T.
Carroll.....	7	Unionville.....	2	Sunbury.....	2
Creston.....	4	Montana.		Towanda.....	T.
Davenport.....	1	Billings.....	9	Williamsport.....	3
Des Moines.....	4	Helena.....	2	Rhode Island.	
Dubuque.....	9	Missoula.....	8	Providence.....	T.
Iowa City.....	3	Nebraska.		South Dakota.	
Keokuk.....	T.	North Platte.....	2	Huron.....	4
Sioux City.....	12	Omaha.....	9	Pierre.....	8
Kansas.		Valentine.....	5	Rapid City.....	2
Concordia.....	4	New Hampshire.		Yankton.....	21
Dodge City.....	1	Bethlehem.....	14	Vermont.	
Ellinwood.....	2	Concord.....	10	Battleboro.....	8
Marion.....	5	Durham.....	10	Burlington.....	8
Salina.....	2	Hanover.....	5	Northfield.....	15
Topeka.....	3	Keene.....	7	St. Johnsbury.....	6
Wakeeney.....	T.	New Jersey.		Virginia.	
Wichita.....	2	Bridgeton.....	T.	Buchanan.....	2
Maine.		Cornish.....	1	Culpeper.....	1
Bangor.....	9	Eastport.....	5	Lynchburg.....	1
Cornish.....	10	New Mexico.		Staunton.....	T.
Eastport.....	5	Santa Fe.....	1	Woodstock.....	2
Gardiner.....	7	New York.		Washington.	
Greenville.....	10	Addison.....	13	Spokane.....	4
Lewiston.....	8	Albany.....	1	West Virginia.	
Millinocket.....	15	Beaver River.....	24	Bayard.....	T.
Orono.....	8	Binghamton.....	T.	Burlington.....	4
Portland.....	17	Buffalo.....	10	Parkersburg.....	T.
Van Buren.....	8	Clinton.....	13	Wisconsin.	
Maryland.		Herkimer.....	4	Hancock.....	10
Baltimore.....	T.	Ithaca.....	8	Milwaukee.....	10
Easton.....	T.	Lowville.....	15	Wyoming.	
Frederick.....	2	Malone.....	10	Yellowstone Park.....	2
Massachusetts.		Norwich.....	5		
Amherst.....	5	Ogdensburg.....	18		
Boston.....	2				

* Shore ice. † Floating ice. ‡ Ice gorged. § Ice inaccessible. T. indicates trace.

SNOW AND ICE BULLETIN.



WASHINGTON, D. C., February 9, 1915.

DEPTH OF SNOW.

The area of rain and snow over the eastern districts at the beginning of the week moved to the Atlantic coast during the first two days, with some heavy rains over the Southern and Eastern States and more or less snow in the lower Lake region and the northern portions of New York and New England.

The storm in the far West at the beginning of the week moved to the Rocky Mountains and thence to the Plains region by the middle of the week, but without indications of any considerable precipitation in the Mountain districts. During the following few days it moved northeastward to the Lake region and into the St. Lawrence Valley, with attendant rains to the southward of the Ohio and snow to the northward.

The latter part of the week was without appreciable snow or rain over the western districts, and at the close fair weather prevailed in all portions of the country save from the lower Lakes to New England and along the immediate Pacific coast.

As compared with the preceding week there has been a very general reduction in the extent of an appreciable snow cover, and the depths have likewise diminished to some extent, where the ground continues covered, especially in the northern drainage of the Ohio and thence westward to the Missouri Valley.

From central Montana eastward to the Lake region and over portions of New York and New England there has been a very general, though small increase in the snow depth. In the Rocky Mountain region and thence westward there was practically no addition to the ground covering at moderate elevations during the week and it is probable little fell in the higher ranges, where in the northern districts the stored supply still continues much below the normal.

A fair snow covering still prevails over the northern portions of the winter grain-growing region, while over the great cattle ranges the ground remains uncovered and pasture is still available.

ICE IN RIVERS AND HARBORS.

The week opened with moderate temperatures prevailing in nearly all portions of the country, and only slight changes occurred until after the middle of the week.

By Saturday considerably colder weather had overspread the districts between the Mississippi River and the Rocky Mountains, and during the closing days of the week it extended into the eastern districts, so that at the end temperatures were generally below normal save in the far Northwest and along the Pacific coast.

No marked changes occurred in the ice conditions as compared with last week, the largest increases occurring in the Lake region, although some decreases were reported from both the upper and lower Lakes.

The high waters in the Ohio River Basin probably broke up and carried out any ice that had formed over the streams of that region.

The following special reports have been received:

Brattleboro, Vt., February 8.—The ice harvest is completed, the ice being of very good quality.

Hartford, Conn., February 9.—The snow in the Connecticut Valley averages 10 inches deep, while ice conditions are practically unchanged.

Albany, N. Y., February 9.—The depth of snow in the Hudson Valley ranges from 2 inches at Stuyvesant to 14 inches at Glens Falls, and in the Mohawk Valley averages 5 inches. The ice averages 10 inches thick in the Hudson River, but the Mohawk River is open in many places.

Binghamton, N. Y., February 9.—The snow in the upper Susquehanna Valley averages 2 inches deep, in the Unadilla 4 inches, in the Chenango 6 inches, and in the Tioughnioga 7 inches, the greatest depth reported being 11 inches at De Ruyter.

Pittsburgh, Pa., February 8.—In the valleys the depth of snow seldom exceeds 2 inches, but it ranges from 8 to more than 10 inches in the eastern mountains, where the water equivalent is unusually high.

Yankton, S. Dak., February 8.—The heavy snow and high winds of the 4th and 5th stopped train service until noon of the 6th.

Rapid City, S. Dak., February 8.—The snow on the summit of the Black Hills is reported to be 4 feet deep.

P. C. DAY, Climatologist and Chief of Division.

DEPTH OF SNOW AND THICKNESS OF ICE AT 8 P. M., FEBRUARY 8, 1915.

Stations.	Snow.	Ice in rivers, harbors, etc.	Stations.	Snow.	Ice in rivers, harbors, etc.	Stations.	Snow.	Ice in rivers, harbors, etc.
Arizona.	Inches	Inches	Michigan—Cont'd.	Inches	Inches	Ohio.	Inches	Inches
Flagstaff.....	11		Port Huron.....	8	12.0	Ashland.....	4	
Colorado.			Saginaw.....	4	11.0	Canton.....	1	
Durango.....	12		St. Ignace.....	4		Cincinnati.....	T.	0.0
Connecticut.			Sault Ste. Marie..	19	18.5	Cleveland.....	3	9.0
Hartford.....	2	*	Minnesota.			Dayton.....	T.	*
New Haven.....	1	0.0	Angus.....	4		Marion.....	4	
West Cornwall..	3		Collegeville.....	7		New Bremen.....	2	
Illinois.			Duluth.....	6	38.0	Philo.....	1	
Chicago.....	T.		Fergus Falls.....	10		Sandusky.....	4	9.0
Peoria.....	T.	6.0	Grand Meadow...	16		Toledo.....	4	10.0
Walnut.....	2		Hinckley.....	7		Pennsylvania.		
Indiana.			International Falls	7		Carlton.....	5	
Fort Wayne.....	3		Mankato.....	7		Drifton.....	4	
Knox.....	1		Minneapolis.....	8		Emporium.....	7	
Marion.....	1		Moorhead.....	10	26.0	Erie.....	3	10.0
Iowa.			Reeds.....	5		Everett.....	6	
Albia.....	2		Roseau.....	8		Franklin.....	2	
Atlantic.....	6		St. Paul.....	8	18.0	Greenville.....	2	
Boone.....	6		State Sanatorium.	9		Harrisburg.....	T.	0.0
Carroll.....	10		Winton.....	10		Huntingdon.....	2	
Charles City.....	2		Worthington.....	15		Indiana.....	1	
Creston.....	2		Montana.			Johnstown.....	6	
Davenport.....	T.	18.5	Hannibal.....	T.	†	Lawrenceville...	10	
Des Moines.....	3	17.0	Kansas City.....	0	†	Meadville.....	3	
Dubuque.....	6	20.5	St. Joseph.....	T.	†	Parkers Landing..	2	
Estherville.....	16		St. Louis.....	0	†	Pittsburgh.....	T.	0.0
Iowa City.....	2		Missouri.			Ridgway.....	5	
Keokuk.....	0	10.0	Billings.....	3		Seranton.....	1	
Sioux City.....	10	20.0	Helena.....	8		Stroudsburg.....	1	
Kentucky.			Havre.....	8		Sunbury.....	2	
Maysville.....	1		Kalispell.....	9		Towanda.....	1	
Mount Sterling..	1		Miles City.....	9		Warren.....	3	
Maine.			Missoula.....	4		Washington.....	3	
Bangor.....	5	16.0	Nebraska.			Williamsport.....	2	
Cornish.....	12		Alliance.....	5		South Dakota.		
Eastport.....	T.	0.0	Auburn.....	7		Huron.....	5	21.0
Eastgardner.....	6	12.0	Broken Bow.....	4		Pierre.....	3	21.0
Greenville.....	18	25.5	Central City.....	5		Rapid City.....	1	
Lewiston.....	3	14.5	Kearney.....	3		Yankton.....	18	17.0
Orono.....	6		Lincoln.....	3		Vermont.		
Portland.....	6	0.0	Oakdale.....	10		Brattleboro.....	12	14.0
Van Buren.....	12		Omaha.....	5	20.5	Burlington.....	7	*
Maryland.			Valentine.....	5		Northfield.....	14	
Oakland.....	3		Wisner.....	18		St. Johnsbury...	10	
Massachusetts.			New Hampshire.			Wells River.....	12	
Boston.....	3		Bethlehem.....	11		Virginia.		
Concord.....	3		Durham.....	8	13.0	Wytheville.....	T.	
Fitchburg.....	4		Hanover.....	11		Washington.....		
Holyoke.....	6		Keene.....	7		Spokane.....	3	
Michigan.			New York.			West Virginia.		
Alpena.....	3	20.0	Albany.....	1	‡	Elkins.....	4	0.0
Ann Arbor.....	6		Beaver River.....	24		Fairmont.....	2	
Battle Creek.....	4		Binghamton.....	1		Huntington.....	T.	
Big Rapids.....	11		Bouckville.....	7		Parkersburg.....	1	0.0
Cadillac.....	22		Buffalo.....	8	9.0	Rowlesburg.....	2	
Calumet.....	32		Canton.....	10		Wisconsin.		
Chatham.....	82		Herkimer.....	4		Ashland.....	13	
Detroit.....	5	15.0	Ithaca.....	8		Brodhead.....	9	
Escanaba.....	8	21.0	Lowville.....	18		Green Bay.....	3	18.5
Grand Haven.....	7		Norwich.....	6		Hancock.....	6	
Grand Rapids..	4		Ogdensburg.....	21		La Crosse.....	5	18.0
Harrisville.....	7		Oswego.....	13	14.5	Madison.....	5	
Houghton.....	28	10.0	Poughkeepsie...	1		Medford.....	5	
Iron Mountain..	11		Rochester.....	11	3.0	Milwaukee.....	3	0.0
Iron River.....	84		Rome.....	12		New London.....	10	
Ironwood.....	6		Syracuse.....	5		Rhineclander.....	6	
Lansing.....	6		Warwick.....	3		Wausau.....	2	
Manistee.....	16	10.0	Watertown.....	7		Wyoming.		
Marquette.....	16		North Dakota.			Lander.....	T.	
Menominee.....	16		Williston.....	2	26.5	Sheridan.....	7	
Menominee.....	18					Yellowstone Park.	2	

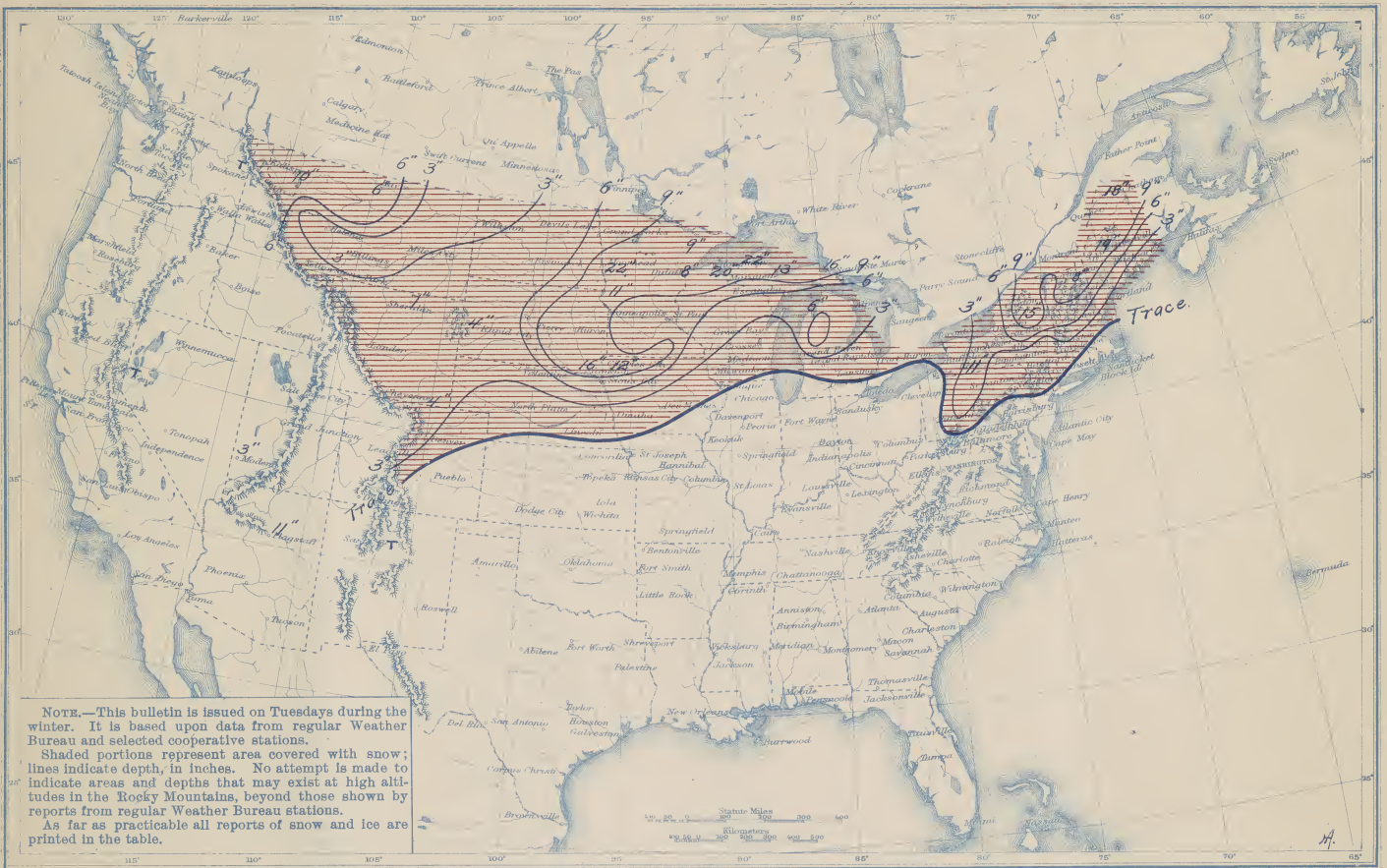
* Shore ice. † Floating ice. ‡ Ice gorged. § Ice inaccessible. T. indicates trace.

U. S. DEPARTMENT OF AGRICULTURE,
WEATHER BUREAU.

CHARLES F. MARVIN, CHIEF.

SNOW AND ICE BULLETIN.

MAR 2-1916



NOTE.—This bulletin is issued on Tuesdays during the winter. It is based upon data from regular Weather Bureau and selected cooperative stations. Shaded portions represent area covered with snow; lines indicate depth, in inches. No attempt is made to indicate areas and depths that may exist at high altitudes in the Rocky Mountains, beyond those shown by reports from regular Weather Bureau stations. As far as practicable all reports of snow and ice are printed in the table.

WASHINGTON, D. C., February 16, 1915.
DEPTH OF SNOW.

Light snow occurred at the beginning of the week in the lower Lake region and the northern portions of New York and New England, but otherwise little snow or rain occurred until after the middle of the week.

The storm that moved from the southern Rocky Mountain region to the Great Lakes and thence to the Atlantic coast during the latter part of the week was accompanied by general precipitation, though not heavy except in a few instances, over much of the far Southwest and from the Plains region eastward. Some snow occurred during this period in the southern Mountain region and on the northern side of the storm from the Plains region northeastward to the Great Lakes, with local heavy falls in portions of the Missouri Valley where high winds caused drifting to such an extent as to seriously interfere with railroad traffic.

Warm rains during the latter part of the week carried off a large portion of the snow cover from the lower Missouri Valley eastward to the Atlantic coast, and there was also a considerable reduction in the snow depth at the lower elevations of the northern Rocky Mountain region. Moderate increases in the snow depth occurred from Colorado northeastward to the Dakotas and western Minnesota, elsewhere there was practically no increase in the depths reported last week.

A large part of the winter grain growing districts are now without appreciable snow covering, and the great cattle ranges likewise continued largely without cover, except in the more northern districts. In the mountain regions of the West it is probable some snow was added during the week at the higher elevations of the southern districts, but to the northward there was probably but little increase and the amounts stored in those districts are still much below the normal.

ICE IN RIVERS AND HARBORS.

Cool and generally clear weather prevailed during the first few days of the week just ended, over the districts from the Mississippi River eastward, while to the westward it was moderately warm and partly cloudy with local rains and snows. By Friday a considerable storm area had moved to the middle and southern Rocky Mountain region, and warm unsettled weather had overspread nearly all portions of the country. During Saturday and Sunday the storm area moved to the Great Lakes with more or less precipitation over the Great Plains, Mississippi Valley, and Lake region, and warmer weather to the eastward, except in the North Atlantic States, where, at exposed points in New England, temperatures below zero occurred. During Monday the precipitation area extended into the Atlantic coast districts, while to the westward cooler weather prevailed, an area of high pressure having advanced from the far Northwest to the middle Plains region by Monday morning.

As a result of the rains and warm weather of the latter part of the week much ice disappeared from the lower Lake region and thence westward to the Mississippi River. Over New England there was some increase in the ice thickness and a like condition prevailed in the Lake Superior region and thence westward to the Missouri, which is still heavily ice-covered from Omaha northward, as well as the upper portion of the Mississippi.

The harbors of Lake Erie are now partly free of ice and none is reported on the streams of the Atlantic coast from the Hudson southward.

The following special reports have been received:

Hartford, Conn., February 16.—The snow in the upper Connecticut Valley averages 8 inches deep.

Albany, N. Y., February 16.—The depth of snow in the Hudson Valley ranges from a trace at Albany to 13 inches at Corinth, and in the Mohawk Valley from 1 inch at Schenectady to 6 inches at Utica. In the Hudson River the ice averages 10 inches thick, but the Mohawk is open in places. The ice at Albany moved out last night.

DEPTH OF SNOW AND THICKNESS OF ICE AT 8 P. M., FEBRUARY 15, 1915.

Stations.		Snow.		Stations.		Snow.		Stations.		Snow.	
		Inches	Ice in rivers, harbors, etc.			Inches	Ice in rivers, harbors, etc.			Inches	Ice in rivers, harbors, etc.
Arizona.											
Flagstaff	11			Minnesota.							
Colorado.											
Denver	3			Angus	6			New York—Cont'd.			
Connecticut.				Collegeville	4			Oswego	4	13.5	
Hartford	T.	*		Duluth	8	34.0		Rochester	1	†	
West Cornwall	1			Fergus Falls	11			Rome	6		
Iowa.				Fort Ripley	8			Schenectady	1		
Atlantic	2			Grand Meadow	12			Syracuse	T.		
Boone	2			Hinckley	9			Utica	6		
Charles City	4			International Falls	9			Warwick	T.		
Davenport	0	†		Mankato	6			Watertown	2		
Des Moines	T.	‡		Minneapolis	6			North Dakota.			
Dubuque	2	18.0		Moorhead	22	28.0		Bismarck	5	34.0	
Estherville	12			Reeds	3			Devils Lake	4		
Pocahontas	7			Roseau	8			Williston	2	26.5	
Sioux City	6	19.5		St. Paul	6	14.0		Ohio.			
Maine.				Winton	9			Sandusky	0	7.5	
Bangor	3	18.0		Worthington	6			Toledo	0	†	
Cornish	11			Missouri.							
Eastport	T.	0.0		Hannibal	0	†		Cresson	3		
Gardiner	4	12.0		St. Joseph	0	†		Drifton	1		
Greenville	14	26.5		Montana.							
Lewiston	5	16.0		Havre	6			Emporium	3		
Millinocket	20			Helena	T.			Erie	0	6.0	
Portland	2	0.0		Kalispell	10			Jenner	T.		
Van Buren	18			Miles City	5			Johnsbourg	4		
Massachusetts.				Missoula	1			Lawrenceville	7		
Adams	2			Nebraska.							
Amherst	3			Auburn	1			Somerset	T.		
Concord	2			Imperial	2			Sunbury	T.		
Fitchburg	3			Kearney	T.			Towanda	T.		
Holyoke	3			Lincoln	T.			Williamsport	T.		
Mansfield	T.			North Platte	T.			Rhode Island.			
Turners Falls	7			Oakdale	6			Narragansett Pier	T.		
Michigan.				Omaha	T.	21.0		South Dakota.			
Alpena	1	20.0		Valentine	4			Huron	7	22.0	
Battle Creek	T.			Wisner	8			Pierre	9	21.5	
Big Rapids	8			Nevada.							
Calumet	27			Reno	T.	0.0		Rapid City	4		
Chatham	16			New Hampshire.							
Detroit	T.	0.0		Bethlehem	8			Yankton	16	17.0	
Escanaba	6	22.0		Concord	8	13.0		Utah.			
Grand Haven	T.			Hanover	8			Modena	3		
Grand Rapids	T.			Keene	6			Vermont.			
Harrisville	4			New Jersey.							
Houghton	22	11.0		Newark	T.			Bellows Falls	8		
Humboldt	18			New Mexico.							
Iron River	4			Santa Fe	T.			Brattleboro	10	17.0	
Ironwood	20			New York.							
Lansing	T.			Addison	11			Burlington	2	*	
Ludington	3	17.0		Albany	T.	‡		Northfield	9		
Mackinaw	5			Beaver River	15			St. Johnsbury	10		
Marquette	13	10.5		Binghamton	T.			St. Wells River	10		
Newberry	12			Bouckville	4			White River Junc.	6		
Port Huron	T.	6.0		Buffalo	2	9.0		Washington.			
Rock	12			Canton	3			Spokane	T.		
Saginaw	T.	8.0		Corinth	13			Wisconsin.			
St. Ignace	4			Ithaca	T.			Green Bay	T.	12.0	
Sault Ste. Marie	16	19.5		Lowville	T.			La Crosse	2	18.5	
				Norwich	2			Madison	1		
				Ogdensburg	8			Medford	4		

* Shore ice. † Floating ice. ‡ Ice gorged. § Measurement impracticable. T. indicates trace.

Pittsburgh, Pa., February 15.—The snow has disappeared from the valleys of the streams tributary to the upper Ohio River.

Detroit, Mich., February 15.—A strip of open water 2 miles long extends north from the outlet of Lake St. Clair, and the Detroit River is open from the lake southward to below Sandwich Point. Broken ice fields are moving slowly out of Lake St. Clair.

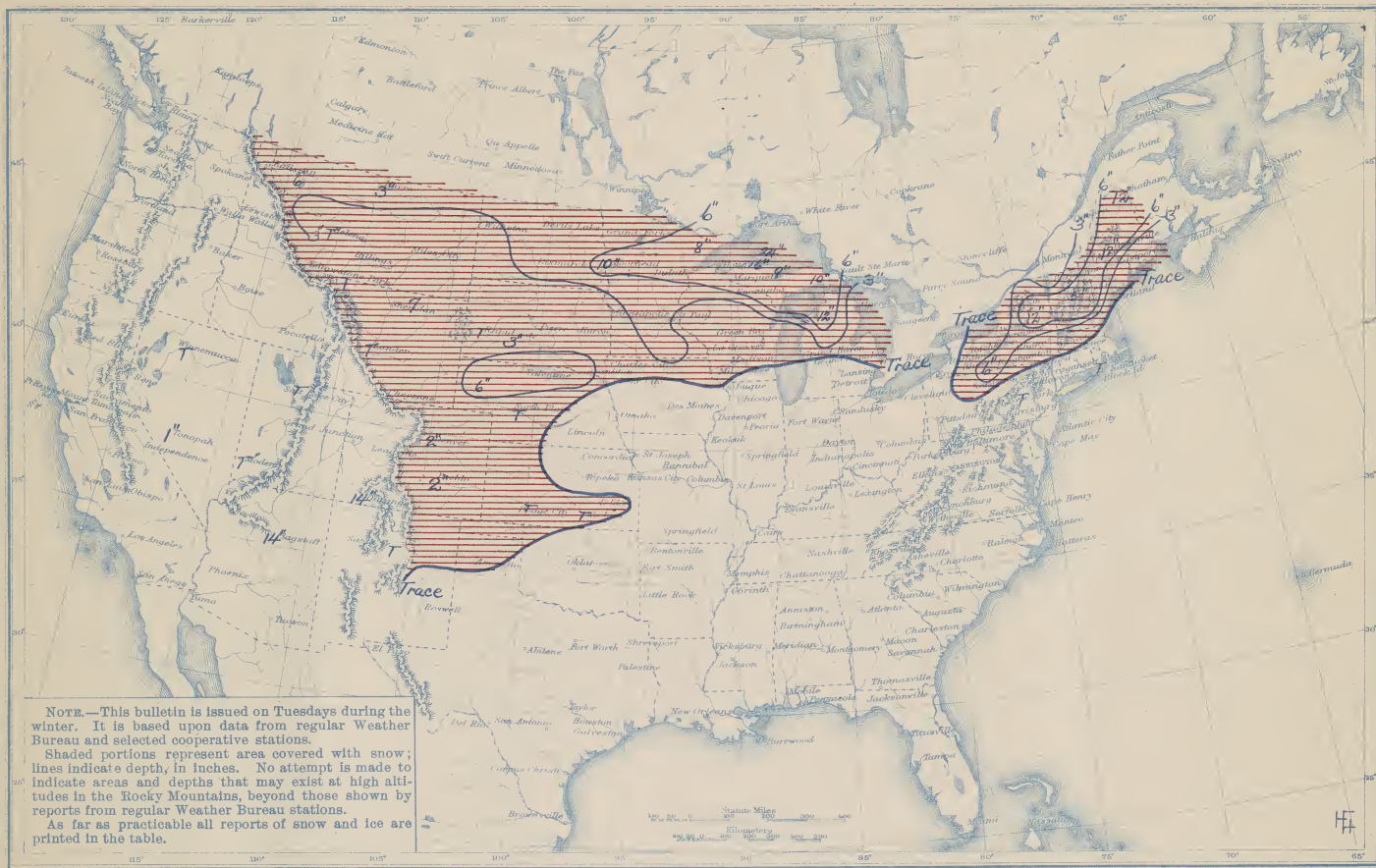
Port Huron, Mich., February 15.—The ice averages 6 inches in thickness and is honeycombed.

Yankton, S. Dak., February 15.—The train service has been demoralized for the past 48 hours by snow drifts formed on the night of the 13th and on the 14th.

P. O. DAY, Climatologist and Chief of Division.



SNOW AND ICE BULLETIN.



WASHINGTON, D. C., February 23, 1915.
DEPTH OF SNOW.

With the passage to the North Atlantic coast by Tuesday of the storm referred to in last week's bulletin, fair weather overspread the eastern districts and continued in the interior and over much of the West. Scattered rains and snows occurred near the middle of the week along the Pacific coast and in the western Mountain districts, but otherwise little precipitation occurred until near the end of the week.

During Sunday and Monday a storm moved from the Southwest to the Mississippi Valley and at this writing it is central near southern Lake Michigan and general rains prevail over the middle and east Gulf States and in the Mississippi and lower Ohio Valleys, with some snow over the northern and western quadrants of the storm area.

Compared with the preceding week there has been a general reduction in the depth of the snow cover in all districts where the ground was covered at that time save at a few scattered points. Only limited areas in the more northern districts are now covered to any appreciable depth, while at the same period a year ago there was a heavy covering over much of the central and northern portions of the country to the eastward of the Rocky Mountains. The winter grain growing regions are now practically free of snow and similar conditions prevail over much of the great range country.

In the western Mountain districts there was little snow during the past week at moderate elevations, and it is probable the amounts in the high mountains were likewise small, with a generally large deficiency continuing over the northern districts.

ICE IN RIVERS AND HARBORS.

Moderately cool weather for midwinter prevailed over the interior districts at the beginning of the week, and as the high pressure area overlying this region drifted to the northeastward lower temperatures prevailed for a few days over the eastern portions of the country. Immediately following this cool period warmer weather set in over the Northwest and gradually extended to nearly all parts of the country, and the latter part of the week was unusually warm and pleasant, although cooler weather overspread the Northwest and extended into the Plains region at the end, and at the same time a storm of considerable extent had moved from the Southwest to the Lake region.

As a result of the unusual warmth but little additional ice formed during the past week and there was a general reduction over the southern portions of the districts where ice was reported at the end of the preceding week. The ice has largely disappeared from the Mississippi and its tributaries and it is moving out of the Missouri, although that river is still ice-bound from Yankton northward.

There was a very general decrease in the amount of ice in the lower Lakes, and some of the harbors are now open. In the upper Lakes, however, there has been little change and the harbors remain closed.

The following special reports have been received:

Hartford, Conn., February 23.—The ice and snow are decreasing slowly, though the latter averages 4 inches in depth in the upper Connecticut Valley.

Albany, N. Y., February 23.—The snow ranges in the Hudson Valley from a trace at Albany to 10 inches at Corinth, and averages 2 inches deep in the Mohawk Valley. The ice in the Hudson River averages 9 inches thick, but the river is open at Albany and the Mohawk River is open in places.

Sandusky, Ohio, February 22.—The channel is open and a fresh wind would probably break the ice field.

Detroit, Mich., February 20.—Ice in small fields has been moving down the De-

DEPTH OF SNOW AND THICKNESS OF ICE AT 8 P. M., FEBRUARY 22, 1915.

Stations.	Snow.	Ice in rivers, harbors, etc.	Stations.	Snow.	Ice in rivers, harbors, etc.	Stations.	Snow.	Ice in rivers, harbors, etc.
Arizona.	Inches	Inches	Minnesota—Cont'd	Inches	Inches	New York—Cont'd	Inches	Inches
Flagstaff	14		Collegeville	2		Norwich	1	
Colorado.			Duluth	8	34.0	Ogdensburg	1	
Denver	2		Fergus Falls	4		Oswego	1	10.0
Durango	14		Fort Ripley	4		Rochester	T.	0.0
Pueblo	2		Grand Meadow	6		Rome	3	
Iowa.			International Falls	4		North Dakota.		
Carroll	T.		Mankato	3		Bismarck	4	34.0
Davenport	0		Milan	2		Williston	1	27.5
Dubuque	T.		Minneapolis	1		Ohio.		
Sioux City	T.		Moorhead	10	28.0	Sandusky	0	5.0
Kansas.			State Sanatorium.	7		Pennsylvania.		
Dodge City	T.		Winton	8		Drifton	T.	
Lola	1		Worthen	1		Emporium	0	
Wichita	T.		Missouri.			Erie	0	8.0
Maine.			Hannibal	0		Lawrenceville	4	
Bangor	T.	18.0	Kansas City	0		Rhode Island.		
Cornish	10		St. Joseph	T.		Narragansett Pier	T.	
Gardiner	2	12.0	Montana.			South Dakota.		
Greenville	12	27.5	Havre	3		Huron	1	24.0
Lewiston	T.	15.0	Helena	T.		Pierre	2	20.0
Millmoquet	1		Kalispell	6		Rapid City	T.	
Portland	15	0.0	Miles City	2		Yankton	6	16.0
Van Buren	12		Missoula	T.		Texas.		
Massachusetts.			Nebraska.			Amarillo	T.	
Adams	T.		Alliance	6		Utah.		
Amherst	T.		Imperial	1		Modena	T.	
Concord	T.		McCook	2		Salt Lake City	T.	
Fitchburg	T.		Oakdale	2		Vermont.		
Holyoke	1		Valentine	3		Brattleboro	5	17.0
Michigan.			Nevada.			Burlington	T.	6.0
Alpena	T.	20.0	Tonopah	1		Northfield	5	
Big Rapids	4		Winnemucca	T.		St. Johnsbury	4	
Calumet	24		New Hampshire.			Wells River	5	
Escanaba	2	22.0	Bethlehem	5		Wisconsin.		
Harrisville	2		Concord	2	18.0	Green Bay	0	5.5
Houghton	16	8.0	Hanover	6		La Crosse	0	18.0
Iron Mountain	8		Keene	3		Madison	T.	
Ironwood	15		New Mexico.			Medford	2	
Ludington	T.	14.0	Santa Fe	T.		Milwaukee	T.	0.0
Mancelona	12		New York.			New London	T.	
Marquette	9	10.5	Addison	6		Wausau	T.	
Menominee	6		Albany	T.		Wyoming.		
Newberry	10		Beaver River	12		Cheyenne	1	
Port Huron	T.	6.0	Bouckville	2		Lander	T.	
Saginaw	T.	4.0	Buffalo	T.	8.5	Sheridan	7	
Sault Ste. Marie	13	21.0	Canton	1		Yellowstone Park	1	
Minnesota.			Herkimer	T.				
Angus	T.		Ithaca	T.				

† Floating ice.

‡ Measurement impracticable.

T. indicates trace.

troit River from Lake St. Clair during the week. There appears to be more open water in the lake, an open area extending from the American to the Canadian shore for about 2 miles from the outlet of the lake. The river is now open to below Sandwich Point, but the lower river ice is stationary.

Port Huron, Mich., February 22.—The ice is honeycombed.

La Crosse, Wis., February 22.—The ice is breaking below the bridge.

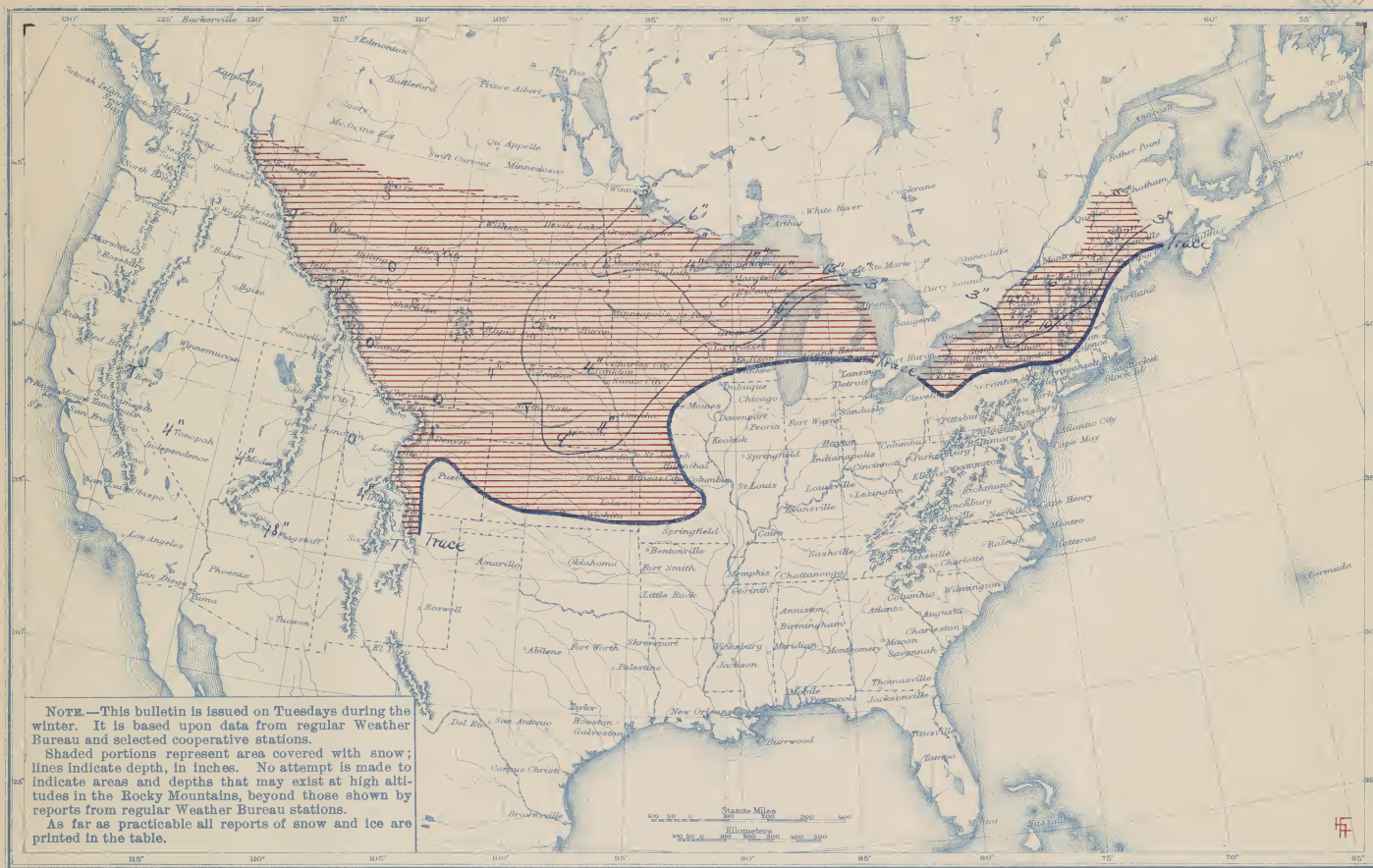
Dubuque, Iowa, February 22.—The ice in the Mississippi River is breaking up.

Omaha, Neb., February 22.—The ice in the Missouri River here broke and ran out Sunday night.

Sioux City, Iowa, February 22.—The ice is breaking.

P. C. DAY, Climatologist and Chief of Division.

SNOW AND ICE BULLETIN.



WASHINGTON, D. C., March 2, 1915.
DEPTH OF SNOW.

The storm central at the depth of the preceding week near southern Lake Michigan moved slowly to the northeastward with some snow in the Lake region, and a storm that moved along the Atlantic coast during the same period gave general, and in some cases heavy, precipitation, mostly rain, over nearly all eastern districts. Near the middle of the week unsettled conditions developed over the Pacific coast States and during Friday and Saturday moved over the southern Mountain regions to Texas where there were some heavy rainfalls.

Local snows occurred in the southern Mountain districts during the passage of this storm and by Saturday morning snow was falling over a considerable area from Texas and New Mexico northward to South Dakota and Wyoming. This storm moved eastward to the south Atlantic coast with decreasing energy, and precipitation was confined mainly to the Gulf States.

Near the close of the week a second storm moved inland from the Pacific coast, and by Monday morning it was central over northern Arizona and at this writing light snows and rains prevail over much of the Southwest.

Not much change has occurred in the snow covered area as compared with last week, although the depths are now generally less, except in the southern Plateau region and portions of Nebraska and surrounding States, and at a few points in the upper Lake region, New York, and New England.

The accumulated snow in the western Mountain region appears to be much less than normal over the central and northern districts, especially so over the more northern States, where the amounts are stated in some cases to be the least in 20 years. More than the normal amounts appear to have fallen in portions of Arizona and New Mexico, as well as in much of California.

ICE IN RIVERS AND HARBORS.

The past week opened with generally high temperatures for the time of the year to eastward of the Rocky Mountains, but in the Mountain and Plateau districts the weather was moderately cold. The warm area drifted eastward during the first few days, closely followed by cooler weather which had overspread all central districts by the middle of the week. With the progress eastward of this cool area there was a tendency toward higher temperatures and the latter part of the week was moderately warm in nearly all districts.

As a result of the temperatures noted above there was but little change in the ice conditions prevailing at the end of the preceding week, except in southern New England. Slight increase in the ice thickness occurred on a few of the more northerly rivers and Lakes, and the streams of the upper Missouri watershed remain about as reported last week.

The ice has broken up throughout the greater part of the upper Mississippi and its tributaries and is passing out without serious gorging so far, and the harbors of the lower Lakes are largely open. The ice in the Hudson and the lower courses of the rivers of New England appears to have broken up quite rapidly and much of it has passed out without gorging.

The following special reports have been received:

Leviston, Me., March 1.—The ice is breaking up in the Androscoggin River here.
Hartford, Conn., March 2.—The depth of snow averages 2 inches in that portion of the Connecticut Valley above Brattleboro. The ice is jammed at Brattleboro, but otherwise the Connecticut River is clear of ice as far as White River Junction, but above there the ice is still intact. The rain and high temperature last week caused the smaller streams to flood and the ice moved out, but was checked by colder weather, yet a moderate freshet in the Connecticut River resulted.

Albany, N. Y., March 2.—The snow in the Hudson Valley ranges from a trace at Albany to 10 inches deep at Glens Falls, and averages 2 inches in the Mohawk Valley. The Hudson River is open south of Glens Falls and the Mohawk is open except at Little Falls.

DEPTH OF SNOW AND THICKNESS OF ICE AT 8 P. M., MARCH 1, 1915.

Stations.	Snow.	Ice in rivers, harbors, etc.	Stations.	Snow.	Ice in rivers, harbors, etc.	Stations.	Snow.	Ice in rivers, harbors, etc.
Arizona.	Inches	Inches	Michigan—Cont'd.	Inches	Inches	New York.	Inches	Inches
Flagstaff.	18		Saginaw.	T.		Addison.		
Colorado.			St. Ignace.	T.		Albany.	T.	2
Denver.	1		Sault Ste. Marie.	13	23.0	Beaver River.	T.	12
Durango.	4		Minnesota.			Binghamton.	T.	
Connecticut.			Angus.	T.		Bouckville.	T.	3
Hartford.	0	†	Collegeville.	T.		Buffalo.	T.	9.5
West Cornwall.	2		Duluth.	4	35.0	Canton.	T.	4
Iowa.			Fergus Falls.	1		Glens Falls.	T.	10
Boone.	3		Fort Ripley.	1		Herkimer.	T.	1
Charles City.	0		Mankato.	3		Lowville.	T.	4
Davenport.	0		Minneapolis.	T.		Malone.	T.	4
Des Moines.	1	0.0	Moorhead.	8	30.0	Norwich.	T.	1
Dubuque.	T.	*	Reeds.	3		Ogdensburg.	T.	4
Estherville.	4		Roseau.	3		Rochester.	T.	0.0
Forest City.	4		St. Paul.	1	†	Rome.	T.	4
Pocahontas.	1		State Sanatorium.	6		Syracuse.	T.	1
Sioux City.	T.	‡	Winton.	7		Watertown.	T.	1
Kansas.			Workington.	T.		North Dakota.		
Concordia.	2		Missouri.			Bismarck.	T.	33.0
Dodge City.	T.		Brunswick.	T.		Devils Lake.	T.	1
Ellinwood.	T.		Clinton.	T.		Williston.	T.	28.0
Lakin.	4		Lamar.	T.		Ohio.		
Salina.	T.		Rolla.	T.		Sandusky.	T.	0
Wichita.	T.		St. Joseph.	T.	0.0	Clarion.	T.	1
Maine.			Springfield.	T.		Pennsylvania.		
Bangor.	T.	15.0	Montana.			Lawrenceville.	T.	0.0
Cornish.	6		Haure.	3		Towanda.	T.	
Eastport.	T.	0.0	Miles City.	1		Rhode Island.		
Gardiner.	0	†	Missoula.	T.		Narragansett Pier.	T.	
Greenville.	7	30.0	Nebraska.			Huron.	T.	24.0
Lewiston.	T.	‡	Alliance.	4		Pierre.	T.	20.0
Millinocket.	17		Auburn.	4		Rapid City.	T.	
Van Buren.	5		Broken Bow.	T.		Yankton.	T.	16.0
Maryland.			Cascade Rock.	5		Utah.		
Oakland.	T.		Lincoln.	4		Modena.	T.	4
Massachusetts.			McCook.	3		Vermont.		
Adams.	T.		North Platte.	T.		Brattleboro.	T.	4
Amherst.	T.		Oakdale.	2		Burlington.	T.	6
Fitchburg.	T.		Omaha.	3	0.0	Northfield.	T.	2
Michigan.			Valentine.	3		St. Johnsbury.	T.	1
Alpena.	T.	20.0	Nevada.			Wisconsin.		
Big Rapids.	2		Reno.	T.	0.0	Green Bay.	T.	7.5
Calumet.	23		Tonopah.	4		Hancock.	T.	6
Escanaba.	4	23.5	New Hampshire.			La Crosse.	T.	15.0
Harr'sville.	2		Bethlehem.	2		Madison.	T.	
Houghton.	17	11.0	Concord.	T.	0.0	Medford.	T.	6
Humboldt.	19		Hanover.	3		Milwaukee.	T.	0.0
Iron Mountain.	12		Keene.	T.		Sheboygan.	T.	
Iron River.	8		New Mexico.			Viroqua.	T.	
Ludington.	T.	12.5	Santa Fe.	T.		Wyoming.		
Marquette.	16	*				Yellowstone Park.	T.	
Menominee.	10							
Port Huron.	T.	6.0						
Rock.	16							

* Shore ice. † Floating ice. ‡ Ice gorged. § Measurement impracticable. T. indicates trace.

Cleveland, Ohio, March 2.—There is floating ice in the west basin.
Sandusky, Ohio, March 1.—Navigation has opened between Sandusky and Put-in-Bay.

Detroit, Mich., February 27.—The ice has been moving slowly out of Lake St. Clair during the past week. On the 26th the fields moved down to the outlet of the lake, and the river has been bank full since the morning of the 26th. Reports indicate that the river is open to Lake Erie and that the ice is moving out freely. There is considerable open water reported over western Lake Erie.

Dubuque, Iowa, March 1.—Portions of the Mississippi River hereabouts are open.

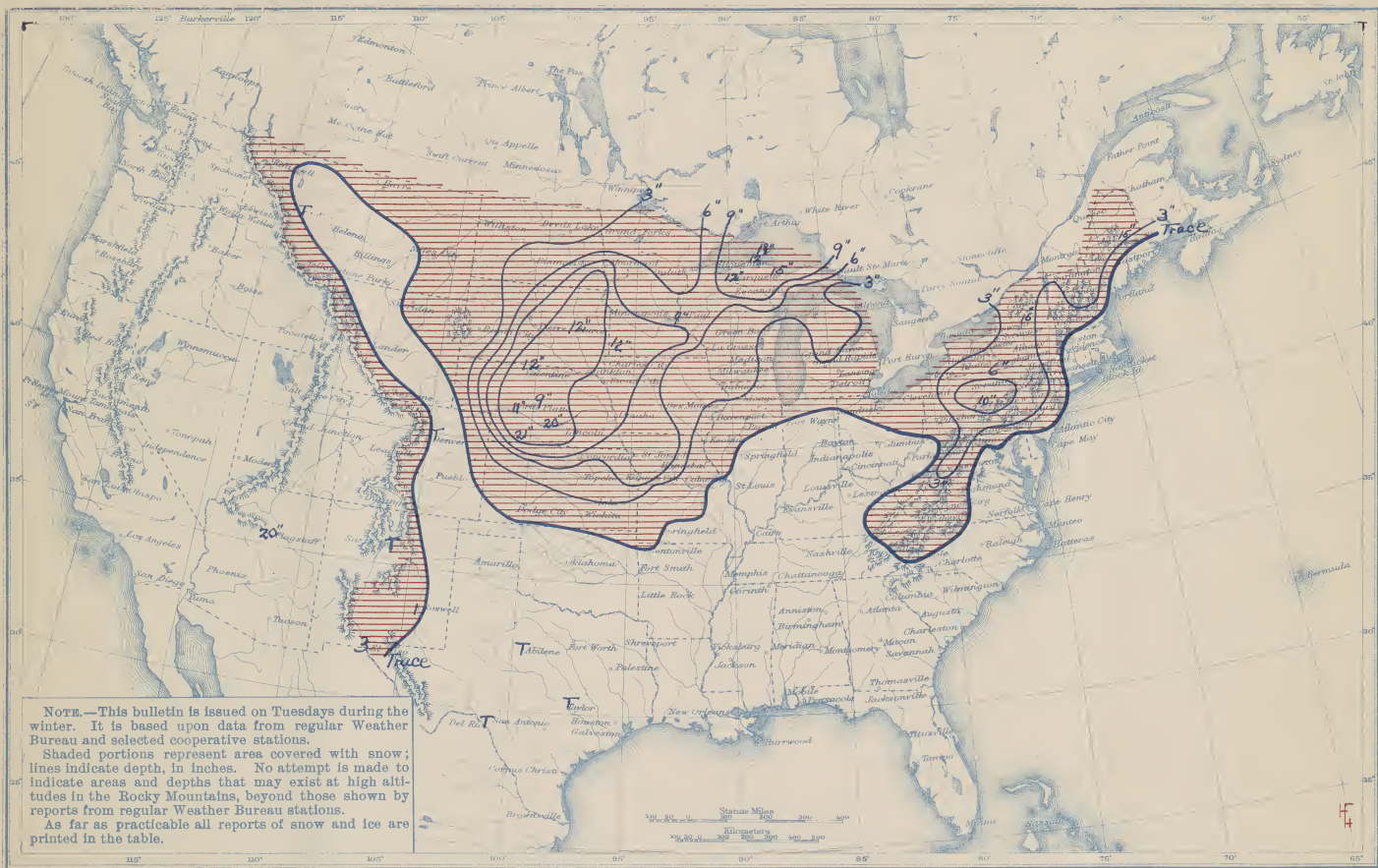
Sioux City, Iowa, March 1.—The ice in the Missouri River here is holding yet, though covered with water.

Yankton, S. Dak., March 1.—The bottom ice in the river here is solid, but the top is honeycombed to a depth of 6 inches.

P. C. DAY, Climatologist and Chief of Division.



SNOW AND ICE BULLETIN.



NOTE.—This bulletin is issued on Tuesdays during the winter. It is based upon data from regular Weather Bureau and selected cooperative stations.
Shaded portions represent area covered with snow; lines indicate depth, in inches. No attempt is made to indicate areas and depths that may exist at high altitudes in the Rocky Mountains, beyond those shown by reports from regular Weather Bureau stations.
As far as practicable all reports of snow and ice are printed in the table.

WASHINGTON, D. C., March 9, 1915.

DEPTH OF SNOW.

The first day or two of the week just closed was without precipitation, except for local falls, mostly in the southwestern Mountain districts. By Wednesday unsettled weather with light rain or snow had overspread the Southwest and extended northward over the Rocky Mountain and Plateau districts to the Canadian border.

By Thursday the rain and snow area had moved slowly into the lower Mississippi Valley and eastern Plains region, with heavy rains in portions of the west Gulf States and moderate falls of snow in the lower Missouri Valley.

During the latter part of the week the storm moved slowly to the eastward and rain or snow occurred in practically all districts from the Mississippi Valley to the Atlantic Coast. Heavy rains occurred in the east Gulf and south Atlantic States and portions of the Ohio Valley and heavy snows in the lower Missouri and portions of the upper Mississippi Valleys, and lighter falls were general in the Lake region, and Appalachian Mountain districts from Virginia northward.

At the close of the week the ground was heavily snow covered in Nebraska and the adjacent portions of Kansas and South Dakota and thence northeastward to the upper Lake region, and there was a considerable covering in the mountain regions of West Virginia and thence northward over interior Pennsylvania to central New York and northern New England. No snow remains on the ground at the lower levels of the mountain districts of the West, except in the extreme southern portions where that falling during the last few days still remains unmelted.

At the close of the week a considerable area of the winter grain growing region to westward of the Mississippi is well covered, and as the ground is probably largely free of frost the melting snow should add a considerable amount of water to the soil under the most favorable conditions for its absorption and retention.

ICE IN RIVERS AND HARBORS.

Early in the week just ended high pressure and cool weather overspread the Northwest and during the following few days temperatures were comparatively low for the season of the year in nearly all portions of the country.

Toward the latter part of the week there was a general but slight warming up over the central valleys and eastern districts, except in the south where cool weather continued during much of the week. At the close cooler weather had again overspread much of the country and temperatures were generally below the average in the districts to eastward of the Rocky Mountains.

As a result of the generally cool weather but little change occurred in the ice conditions as reported one week ago.

The Missouri continues closed from Yankton northward, and parts of the upper Lakes remain heavily ice bound. Elsewhere there is little ice except in the interior portions of New England.

Compared with the same date last year there is now markedly less ice in the lower Lake region as well as in the Mississippi Valley and Middle Atlantic States, but elsewhere the present amount of ice does not differ materially from the amounts reported a year ago.

The following special reports have been received; that from Detroit relates to the conditions existing throughout the Great Lakes and is a summary of a large number of reports collected at that station:

Detroit, Mich., March 9.—Heavy ice fields cover western Lake Superior, but in the central and eastern portions the ice fields are few and broken. In the St. Marys River the ice is solid. In northern Green Bay the ice is heavy. The Lake Michigan fields are confined to the northern portion. The Straits of Mackinac are solid with 12-inch ice. In Lake Huron the fields over the northern and southern portions are broken and moving. The ice is moving out of Lake St. Clair, and the Detroit River is open. The Lake Erie fields are not extensive and are moving with the winds. The amount of field ice in Lake Ontario is small. There is more ice over extreme western Lake Superior than at this date last year, but less ice in all other lakes.

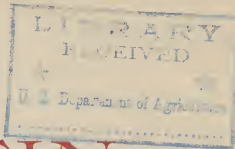
Yankton, S. Dak., March 8.—The train service in this vicinity was considerably interrupted from the 4th to the 6th by heavy snowdrifts.

P. C. DAY, Climatologist and Chief of Division.

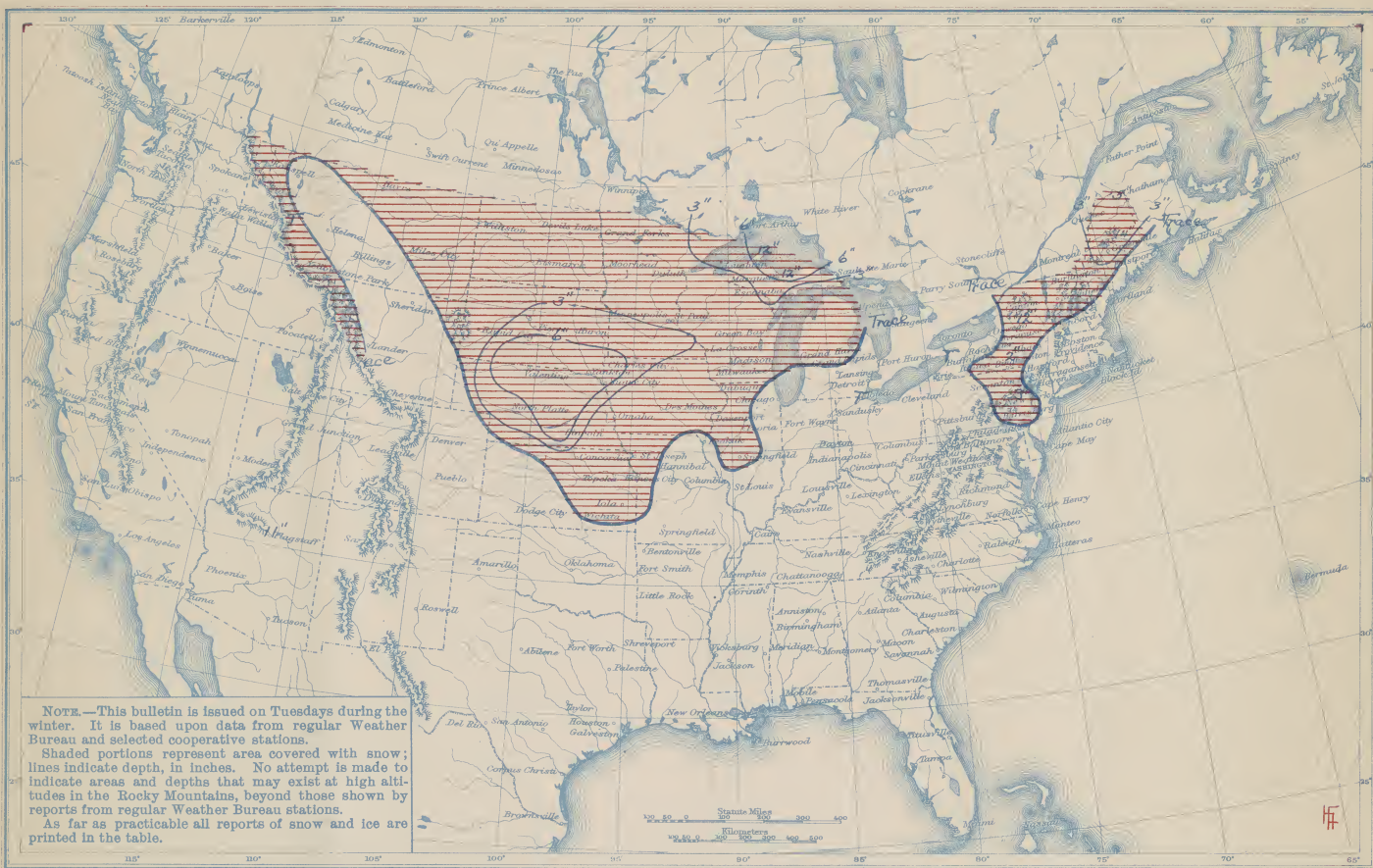
DEPTH OF SNOW AND THICKNESS OF ICE AT 8 P. M., MARCH 8, 1915.

Stations.	Snow.	Ice in rivers, harbors, etc.	Stations.	Snow.	Ice in rivers, harbors, etc.	Stations.	Snow.	Ice in rivers, harbors, etc.
Arizona.	Inches	Inches	Minnesota.	Inches	Inches	North Dakota—C'	Inches	Inches
Flagstaff.....	20		Collegeville.....	6		Devils Lake.....	T.	
Colorado.			Duluth.....	8	34.0	Williston.....	T.	28.0
Denver.....	T.		Fergus Falls.....	10		Ohio.		
Delaware.			Grand Meadow.....	10		Cadiz.....	T.	
Wilmington.....	3		Hinckley.....	9		Cleveland.....	T.	0.0
Illinois.			Mankato.....	4		Philo.....	T.	
Chicago.....	2		Minneapolis.....	6		Sandusky.....	T.	*
Peoria.....	T.	0.0	Moorhead.....	12	30.0	Tiffin.....	T.	
Walnut.....	3		Reeds.....	6		Toledo.....	T.	0.0
Iowa.			Roseau.....	3		Wauseon.....	1	
Albia.....	3		St. Paul.....	4	†	Pennsylvania.		
Atlantic.....	8		State Sanatorium.....	5		Allentown.....	5	
Boone.....	6		Winton.....	6		Center Hall.....	10	
Charles City.....	3		Worthington.....	7		Clarion.....	6	
Creston.....	8		Missouri.			Drafton.....	8	
Davenport.....	1	†	Brunswick.....	8		Emporium.....	5	
Des Moines.....	4	0.0	Clinton.....	2		Erie.....	1	0.0
Dubuque.....	2	0.0	Columbia.....	T.		Franklin.....	2	
Keokuk.....	T.	0.0	Hannibal.....	T.	0.0	Hanover.....	4	
Pocahontas.....	11		Kansas City.....	8	0.0	Harrisburg.....	4	0.0
Sioux City.....	11	‡	Rolla.....	1		Huntingdon.....	5	
Kansas.			St. Joseph.....	4		Indians.....	2	
Concordia.....	10		St. Louis.....	T.	0.0	Johnstown.....	3	
Dodge City.....	T.		Unionville.....	11		Lawrenceville.....	3	
Ellinwood.....	3		Montana.			Parkers Landing.....	4	
Iola.....	3	0.0	Havre.....	3		Philadelphia.....	T.	0.0
Manhattan.....	5		Miles City.....	T.		Pittsburgh.....	T.	0.0
Marion.....	5		Missoula.....	T.		Reading.....	4	0.0
Salina.....	3		Nebraska.			Ridgway.....	6	
Topeka.....	5		Allamore.....	12		Seranton.....	1	
Wichita.....	1		Broken Bow.....	9		Somersett.....	4	
Kentucky.			Guide Rock.....	16		Sunbury.....	9	
Williamsburg.....	T.		Imperial.....	15		Towanda.....	3	
Maine.			Kearney.....	20		Warren.....	4	
Bangor.....	0	14.0	Lincoln.....	11		West Newton.....	1	
Cornish.....	3		McCook.....	21		Williamsport.....	3	
Gardiner.....	0	†	North Platte.....	11		South Dakota.		
Greenville.....	5	31.0	Okadale.....	10		Huron.....	12	24.0
Lewiston.....	0	‡	Omaha.....	10	0.0	Pierre.....	11	20.0
Millinocket.....	15		Valentine.....	12		Rapid City.....	1	
Van Buren.....	7		Wisner.....	10		Yankton.....	16	16.0
Maryland.			New Hampshire.			Texas.		
Frederick.....	T.		Bethlehem.....	2		Abilene.....	T.	
Oakland.....	2		Concord.....	T.	0.0	Del Rio.....	T.	
Michigan.			Hanover.....	2		El Paso.....	3	
Alpena.....	T.	20.0	Lancaster.....	4		Taylor.....	T.	
Ann Arbor.....	4		New Jersey.			Vermont.		
Big Rapids.....	6		Bridgeport.....	T.		Brattleboro.....	0	†
Bloomington.....	2		Long Branch.....	2		Burlington.....	3	*
Cadillac.....	6		Newark.....	4		Northfield.....	1	
Calumet.....	18		Sandy Hook.....	2	0.0	Virginia.		
Chatham.....	15		Trenton.....	2	0.0	Buchanan.....	2	
Detroit.....	T.	0.0	New Mexico.			Danville.....	1	
Escanaba.....	5	24.0	Roswell.....	1		Lynchburg.....	T.	0.0
Grand Haven.....	1		Santa Fe.....	T.		Staunton.....	2	
Grand Rapids.....	T.		New York.			Wytheville.....	1	
Harrisville.....	4		Addison.....	5		West Virginia.		
Houghton.....	12	11.0	Albany.....	T.	†	Elkins.....	6	0.0
Iron Mountain.....	12		Beaver River.....	15		Wisconsin.		
Iron River.....	10		Binghamton.....	1		Brodhead.....	5	
Ironwood.....	12		Bouckville.....	3		Eau Claire.....	6	
Lansing.....	2		Buffalo.....	1	9.5	Green Bay.....	2	7.5
Ludington.....	2	15.0	Canton.....	3		Hancock.....	5	
Mackinac.....	2		New York.....	2		La Crosse.....	1	0.0
Mancelona.....	8		Norwich.....	2		Madison.....	4	
Manistee.....	2		Rochester.....	T.	0.0	Milwaukee.....	4	
Marquette.....	15	8.0	Rome.....	1		New London.....	4	
Menominee.....	14		Syracuse.....	2		Sheboygan.....	1	
Newberry.....	12		Warwick.....	4		Viroqua.....	4	
Port Huron.....	T.	6.0	North Carolina.			Wausau.....	4	
Saginaw.....	12	*	Asheville.....	T.		Wyoming.		
Sault Ste. Marie.....	11	23.0	North Dakota.			Sheridan.....	1	
			Bismarck.....	4	34.0	Yellowstone Park.....	T.	

* Shore ice. † Floating ice. ‡ Ice gorged. § Measurement impracticable. T, indicates trace.



SNOW AND ICE BULLETIN.



WASHINGTON, D. C., March 16, 1915.

DEPTH OF SNOW.

Light snows began early in the week over the southern Mountain and Plateau regions and extended eastward over much of Texas and Oklahoma, but otherwise little snow occurred in any portion of the country during the week until near the close when some light falls were reported from the Lake region and portions of the upper Mississippi and lower Missouri valleys.

Rainfall likewise was light during the week and no general storm overspread any considerable portion of the country until near the close, when the weather became unsettled over the central districts, and at this writing a disturbance of moderate intensity has advanced to the South Atlantic States and rain has been general though light over much of the central and east Gulf districts and light snow is falling in portions of the Appalachian Mountain regions and locally in the Ohio and Mississippi valleys.

Near the end of the week some precipitation occurred in the far Northwest, but the amounts were light except along portions of the Washington coast.

Although unusually cold weather for the season of the year prevailed during much of the week a considerable portion of the heavy snow covering over Nebraska and portions of the surrounding States and thence northeastward to the upper Lake region disappeared, and the amounts in the Appalachian regions from West Virginia to northern New York are now much less than at the beginning of the week, in fact the snow over the eastern part of the country has now largely disappeared.

In the southern Mountain and Plateau regions the snow cover reported last week has practically disappeared from the lower elevations, and none appears to have occurred during the week in the northern districts where the winter's total snowfall continues much below the normal.

ICE IN RIVERS AND HARBORS.

The week opened with temperatures below the normal generally to eastward of the Rocky Mountains and about normal to the westward.

By Tuesday morning freezing weather with heavy frosts prevailed throughout much of the South and temperatures of zero or lower were reported from the Northwest. With the advance of the week slightly warmer weather was the rule, although it continued unusually cold for the season in the South and over the upper Missouri Valley, and the week closed with these conditions still prevailing.

As a result of the generally cool weather the breaking up of the ice in the more northern districts has been still further delayed and the conditions remain nearly as reported last week. Some decreases occurred in the upper Lake region, but the upper Missouri continues ice bound and the lakes and streams of interior New England remain as reported last week.

The following special reports have been received; that from Detroit relates to the conditions existing throughout the Great Lakes and is a summary of a large number of reports collected at that station:

Brattleboro, Vt., March 15.—There is still some snow left on the hills. The ice remains jammed in the Connecticut River here.

Hartford, Conn., March 16.—Snow still remains on the upper levels in the northern part of the Connecticut watershed, but otherwise the ground is bare.

Albany, N. Y., March 16.—There is no snow reported from the Hudson and Mohawk valleys, except at a few places. The Mohawk and Hudson rivers are clear of ice, except the extreme upper Hudson.

DEPTH OF SNOW AND THICKNESS OF ICE AT 8 P. M., MARCH 15, 1915.

Stations.	Snow.	Ice in rivers, harbors, etc.	Stations.	Snow.	Ice in rivers, harbors, etc.	Stations.	Snow.	Ice in rivers, harbors, etc.
Arizona.	Inches	Inches	Michigan—Cont'd.	Inches	Inches	New Hampshire.	Inches	Inches
Flagstaff.....	11		Marquette.....	7	8.0	Bethlehem.....	1	
Illinois.			Menominee.....	4		Hanover.....	1	
Bement.....	T.		Newberry.....	8		New Jersey.		
Oregon.....	T.		Port Huron.....	0	*	Trenton.....	T.	0.0
Springfield.....	T.		Saginaw.....	2		New York.		
Walnut.....	T.		Sault Ste. Marie.	4	22.0	Addison.....	1	
White Hall.....	T.		Collegedale.....	2		Beaver River.....	12	
Indiana.			Duluth.....	T.	32.0	Binghamton.....	T.	
Indianapolis.....	T.		Fergus Falls.....	T.		Buffalo.....	T.	10.0
Iowa.			Fort Ripley.....	T.		Canton.....	1	
Boone.....	T.		Grand Meadow.....	5		Corinth.....	T.	
Charles City.....	T.		Hinckley.....	T.		Glens Falls.....	3	
Creston.....	T.		Mankato.....	4		Norwich.....	2	
Davenport.....	T.	0.0	Milan.....	3		Utica.....	2	
Des Moines.....	T.	0.0	Minneapolis.....	1		North Dakota.		
Dubuque.....	T.	0.0	Moorehead.....	2	30.0	Bismarck.....	1	35.0
Estherville.....	6		Reeds.....	3		Williston.....	T.	28.0
Iowa City.....	T.		Roseau.....	2		Ohio.		
Pocahontas.....	5		St. Paul.....	1	*	Sandusky.....	0	†
Sioux City.....	4	‡	State Sanatorium.	1		Toledo.....	T.	0.0
Kansas.			Winton.....	4		Pennsylvania.		
Concordia.....	1		Worthington.....	3		Drifton.....	8	
Wichita.....	T.		Missouri.			Harrisburg.....	T.	0.0
Bangor.....	0	12.0	Kansas City.....	T.	0.0	Lawrenceville.....	T.	
Cornish.....	2		Lamar.....	T.		Reading.....	T.	0.0
Gardiner.....	0	†	St. Joseph.....	T.	0.0	Sunbury.....	T.	
Greenville.....	4	31.0	Unionville.....	T.		South Dakota.		
Lewiston.....	0	†	Montana.			Huron.....	4	24.0
Millinocket.....	14		Havre.....	2		Pierre.....	6	‡
Van Buren.....	5		Miles City.....	T.		Rapid City.....	T.	
Michigan.			Missoula.....	T.		Yankton.....	8	15.0
Alpena.....	T.	20.0	Nebraska.			Vermont.		
Big Rapids.....	T.		Alliance.....	6		Brattleboro.....	0	†
Calumet.....	12		Broken Bow.....	4		Burlington.....	1	
Chatham.....	12		Central City.....	6		Northfield.....	1	
Escanaba.....	T.	20.0	Guide Rock.....	9		St. Johnsbury.....	T.	
Grand Haven.....	1		Imperial.....	8		Wisconsin.		
Grand Rapids.....	T.		Kearney.....	8		Eau Claire.....	2	
Houghton.....	4	7.0	Lincoln.....	2		La Crosse.....	T.	‡
Iron Mountain.....	3		North Platte.....	1		Madison.....	T.	
Iron River.....	2		Oakdale.....	6		Medford.....	2	
Lansing.....	T.		Omaha.....	T.	0.0	Milwaukee.....	2	0.0
Ludington.....	T.	13.5	Valentine.....	7		New London.....	T.	
Mackinaw.....	1		Wisner.....	6		Wyoming.		
						Yellowstone Park.	T.	

* Shore ice. † Floating ice. ‡ Ice gorged. § Measurement impracticable. T indicates trace.

Detroit, Mich., March 16.—The ice in western Lake Superior remains unchanged, but there are more fields over the eastern portion. There is no change in the ice in the St. Marys River or Green Bay. The Lake Michigan fields are confined to the northern portion. There is no change in the ice in the Straits of Mackinac. In Lake Huron fields cover the northern and southern portions with much open water in the central part. The ice fields in Lake Erie extend along the southern shore from the islands to Buffalo. There are light fields in the central and eastern portions of Lake Ontario. There is more ice in western Lake Superior than at this date last year, but less in the other lakes.

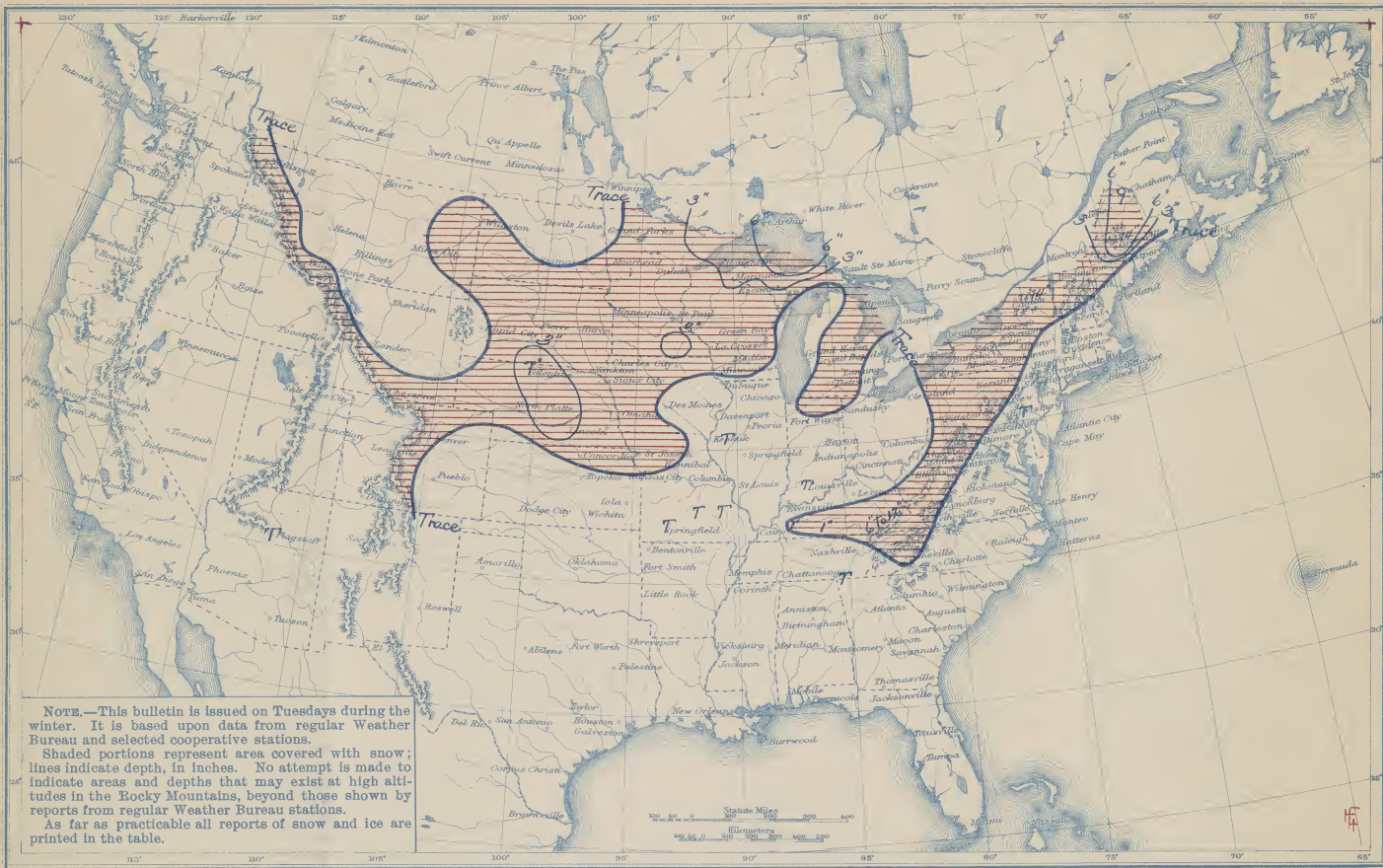
La Crosse, Wis., March 16.—It is impracticable to measure the ice in the Mississippi River here, as there is some open water.

Sioux City, Iowa, March 15.—The ice in the Missouri River here is thin in spots and unsafe to measure.

Yankton, S. Dak., March 15.—The Missouri River ice is softening at this point, but no air holes are visible. The pontoon bridge is being removed to-day.

P. O. DAY, Climatologist and Chief of Division.

SNOW AND ICE BULLETIN.



WASHINGTON, D. C., March 23, 1915.

DEPTH OF SNOW.

The storm referred to in the issue of last week passed into the Atlantic without much additional precipitation and by Wednesday morning fair weather prevailed in practically all portions of the country. Only slight precipitation occurred for several days afterward, but by Friday disturbed conditions had developed in the central valleys and Southwest and during the latter part of the week rain or snow occurred at intervals over the central and eastern districts. Except in a few localities, however, the amounts of rain or snow were generally small.

In the southern mountain regions of Kentucky there appears to have been some heavy snow, and it is reported that heavy drifting snow caused some delay to traffic in portions of South Dakota. In the western mountain districts the week appears to have been unusually free from snow.

At the close of the week the accumulated winter's snowfall had largely disappeared, save in northern New England, at points in the Adirondack regions, and in the vicinity of Lake Superior. Some recent falls still remain unmelted in the mountains of eastern Kentucky and in other portions of the southern Appalachians, and some of the recent heavy covering in portions of Nebraska remains unmelted. In most other districts where snow is reported the amounts are now largely negligible.

In the more northern States of the far West the snow supply accumulated in the elevated portions continues almost everywhere much less than the normal quantity at this date, and the prospects for a good water flow next summer are accordingly poor. In much of Colorado and Nevada and in northern Utah the supply is somewhat deficient, but in southern Utah and most portions of California, Arizona, and New Mexico there is an abundance of snow at the higher levels and prospects are unusually favorable.

ICE IN RIVERS AND HARBORS.

The week just ended was on the whole unusually cold for the season of the year over much of the country to the eastward of the Rocky Mountains, the cold being especially unseasonable over the southern portions. Early in the week temperatures near the freezing point prevailed over much of the Gulf region and frosts extended well into Florida. Again, later in the week, unusual cold overspread the west Gulf States, and freezing temperatures extended into southern Texas, and overspread the districts to the eastward as far south as the Florida line by the end of the week.

To the westward of the mountains warmer weather was the rule, and some unusually high temperatures occurred over the Pacific coast districts near the first part of the week and again at the end.

In the districts where ice still remains but slight changes occurred in the conditions as compared with the preceding week. Some additional ice formed at a few far northern points, and small amounts disappeared in other localities. On the whole there is now much less ice than usual at this date in New England, and probably more than usual in the upper Lake region and thence westward to the Rocky Mountains.

The following special reports have been received; that from Detroit relates to the conditions existing throughout the Great Lakes and is a summary of a large number of reports collected at that station:

Brattleboro, Vt., March 22.—There is still snow back on the hills and the Connecticut River here is open in places.

Albany, N. Y., March 23.—There is no ice in the Hudson and Mohawk rivers, except in the extreme upper Hudson, and navigation was resumed on the 18th.

DEPTH OF SNOW AND THICKNESS OF ICE AT 8 P. M., MARCH 22, 1915.

Stations.	Snow.	Ice in rivers, harbors, etc.	Stations.	Snow.	Ice in rivers, harbors, etc.	Stations.	Snow.	Ice in rivers, harbors, etc.
Arizona.	Inches	Inches	Minnesota.	Inches	Inches	North Carolina.	Inches	Inches
Flagstaff.....	T.	.....	Collegeville.....	T.	.....	Asheville.....	1	.....
Colorado.			Duluth.....	T.	38.0	North Dakota.		
Denver.....	T.	.....	Fort Ripley.....	T.	.....	Bismarck.....	0	34.0
Illinois.			Grand Meadow.....	8	.....	Williston.....	T.	3
Macomb.....	T.	.....	Mankato.....	2	.....	Ohio.		
Indiana.			Minneapolis.....	T.	.....	Cleveland.....	0	*
Knox.....	T.	.....	Moorhead.....	T.	29.0	Wausau.....	T.	.....
Paoli.....	T.	.....	Reeds.....	T.	.....	Pennsylvania.		
Winona Lake.....	T.	.....	Roseau.....	T.	*	Drifton.....	T.	.....
Iowa.			St. Paul.....	T.	.....	Emporium.....	T.	.....
Atlantic.....	T.	.....	State Sanatorium.....	T.	.....	Erie.....	T.	0.0
Charles City.....	T.	.....	Winton.....	4	.....	Huntingdon.....	T.	.....
Creston.....	T.	.....	Worthington.....	T.	.....	Pittsburgh.....	T.	0.0
Sioux City.....	T.	.....	Missouri.			Reading.....	T.	0.0
Kansas.			Brunswick.....	1	.....	Towanda.....	T.	.....
Concordia.....	T.	.....	Ironton.....	T.	.....	Williamsport.....	T.	.....
Kentucky.			Maryville.....	T.	.....	South Dakota.		
Beattyville.....	1	.....	Rolla.....	T.	.....	Huron.....	1	24.0
Earlington.....	1	.....	St. Joseph.....	T.	0.0	Pierre.....	1	3
Eubank.....	6	.....	Springfield.....	T.	.....	Yankton.....	2	14.0
Maine.			Unionville.....	1	.....	Tennessee.		
Greenville.....	9	32.5	Montana.			Chattanooga.....	T.	0.0
Lewiston.....	0	7	Miles City.....	T.	.....	Brattleboro.....	0	*
Millinocket.....	14	.....	Missoula.....	T.	.....	Burlington.....	T.	.....
Van Buren.....	9	.....	Nebraska.			Northfield.....	T.	.....
Michigan.			Guide Rock.....	4	.....	St. Johnsbury.....	T.	.....
Alpena.....	T.	20.0	Kearney.....	3	.....	Virginia.		
Ann Arbor.....	T.	.....	Lincoln.....	T.	.....	Wytheville.....	T.	.....
Battle Creek.....	T.	.....	North Platte.....	T.	.....	West Virginia.		
Big Rapids.....	T.	.....	Valentine.....	7	.....	Elkins.....	1	0.0
Bloomington.....	T.	.....	New Hampshire.			Wisconsin.		
Calumet.....	12	.....	Bethlehem.....	2	.....	Ashland.....	T.	.....
Chatham.....	9	.....	Hanover.....	T.	.....	Eau Claire.....	T.	.....
Escanaba.....	T.	19.5	New York.			Hancock.....	T.	.....
Houghton.....	4	5.0	Addison.....	T.	.....	La Crosse.....	0	*†
Iron Mountain.....	1	.....	Bouckville.....	1	.....	Medford.....	1	.....
Iron River.....	T.	.....	Buffalo.....	1	10.0	Milwaukee.....	T.	0.0
Ironwood.....	3	.....	Canton.....	T.	.....	New London.....	T.	.....
Ludington.....	0	3	Idaho.	T.	.....	Sheboygan.....	T.	.....
Marquette.....	2	2.5	Norwich.....	2	.....	Virgiana.....	T.	.....
Menominee.....	1	.....	Rochester.....	T.	0.0	Wausau.....	T.	.....
Newberry.....	7	.....	Saranac Lake.....	14	.....	Wyoming.		
Rock.....	6	.....	Syracuse.....	2	.....	Cheyenne.....	T.	.....
Saginaw.....	T.	0.0						
Sault Ste. Marie.....	1	21.0						

* Shore ice. † Floating ice. ‡ Measurement impracticable. T. indicates trace.

Excepting the small amounts from last night's fall the snow reported consists only of traces in the extreme upper Hudson and Mohawk valleys.

Louisville, Ky., March 23.—Reports indicate 1 inch of snow over most of the southern portion of the State, and from 6 to 12 inches in the southern mountain counties.

Detroit, Mich., March 23.—Conditions over extreme western Lake Superior remain the same. There is more ice over the eastern portion but it is not heavy. There is no change in the ice in the St. Marys River and Green Bay. The Michigan fields are confined to the northern portion of the lake. There is no change in the Straits of Mackinac, but there are moving fields over the northern and southern portions of Lake Huron. The fields in Lake Erie extend from the islands to Buffalo along the south shore, but none are reported along the north shore. In Lake Ontario a few small fields are reported over the eastern portion. Except in the extreme western part of Lake Superior there is not now as much ice as at this date last season.

Sioux City, Iowa, March 23.—The ice in the Missouri River here is rotten and the channel is partly open.

P. C. DAY, Climatologist and Chief of Division.

U. S. DEPARTMENT OF AGRICULTURE,
WEATHER BUREAU.
CHARLES F. MARVIN, CHIEF.

SNOW AND ICE BULLETIN.

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WASHINGTON, D. C., March 30, 1915.

DEPTH OF SNOW.

As during several preceding weeks there has been a marked absence of stormy weather and but little precipitation, either rain or snow, occurred, except at a few points near the Pacific Coast. Some light rains and snows fell over the northern districts about the middle of the week, and toward the end a storm moved into the Pacific coast States with some heavy rains in northern California. At the present writing this storm has moved to the southern Plains region, and more or less precipitation has occurred locally in the mountain districts of the West, and snow is now falling over a considerable area from the central Rocky Mountain region southeastward to the middle Mississippi Valley, and locally in the Lake region.

Not much change has occurred in the snow-covered region as compared with last week. A small area over northwestern Nebraska and the adjoining portions of South Dakota still remains covered, as during the past several weeks, a most unusual condition so late in the season. In the mountain districts of the West small amounts of snow only occurred at the lower levels, and it is probable no considerable additions to the stored supplies have occurred at the higher elevations.

The continued cold and general lack of moisture during the past several weeks over much of the country has delayed the development of grains and grasses, and damage to both crops has doubtless resulted.

ICE IN RIVERS AND HARBORS.

In the districts to eastward of the Rocky Mountains cold weather for the season of the year continued as during the preceding week, the minimum temperatures during the first few days continuing near the freezing point over much of the Gulf section, with killing frosts almost to the Gulf and south Atlantic coasts. Warm weather continued in the Pacific coast States during the early part of the week, but during the latter part more seasonable temperatures prevailed.

About the middle of the week there was some moderation in temperatures over the southern districts, but a strong high pressure moved into the Northwest, and severe cold overspread the central and northern Plains region, and extended eastward into the Ohio Valley and north Atlantic coast States by Saturday.

At the close of the week decidedly cold weather had again overspread the northern districts between the Rocky Mountains and Great Lakes, but elsewhere there was a tendency to higher temperatures, except in the far West.

On account of the continued cold there was not much change in the ice conditions as reported a week ago. The upper Missouri still remains closed, as well as other streams in that region and in northern New England. There has been some reduction in the amount of ice in the upper Lakes, but no general breaking up has yet commenced.

The following special reports have been received; that from Detroit relates to the conditions existing throughout the Great Lakes and is a summary of a large number of reports collected at that station:

Brattleboro, Vt., March 29.—There is still snow back on the hills, but the Connecticut River here is free of ice.

Albany, N. Y., March 30.—There is no ice in the Hudson and Mohawk rivers, and only traces of snow are reported anywhere in the watersheds.

Detroit, Mich., March 30.—The western Lake Superior ice field extends 20 miles down the northern shore and beyond the islands on the southern shore. There are no ice fields over the central portion of Superior, but extensive fields cover the extreme eastern portion. There is practically no change in the ice in the St. Marys River, Green Bay, and the Straits of Mackinac. The Lake Michigan fields are confined to the extreme northeastern portion. The Huron fields

DEPTH OF SNOW AND THICKNESS OF ICE AT 8 P. M., MARCH 29, 1915.

Stations.	Snow.	Ice in rivers, harbors, etc.	Stations.	Snow.	Ice in rivers, harbors, etc.	Stations.	Snow.	Ice in rivers, harbors, etc.
Iowa.	Inches		Minnesota.	Inches		New York—Cont'd.	Inches	
Sioux City.....	0	§	Collegeville.....	T.		Rome.....	T.	
Kansas.			Duluth.....	T.	29.0	Saranac Lake.....	8	
Concordia.....	T.		Grand Meadow.....	T.	4	Watertown.....	1	
Maine.			International Falls.....	T.		North Dakota.		
Gardiner.....	T.	0.0	Mankato.....	T.		Bismarck.....	0	32.0
Greenville.....	3	31.5	Minneapolis.....	T.		Williston.....	T.	§
Lewiston.....	T.	*	Moorhead.....	T.	28.0	Ohio.		
Millinocket.....	13		Worthington.....	T.		Cleveland.....	T.	†
Van Buren.....	5		Montana.			Columbus.....	T.	
Maryland.			Billings.....	T.		New Bremen.....	T.	
Oakland.....	T.		Helena.....	1		Sandusky.....	T.	0.0
Michigan.			Miles City.....	T.		Tiffin.....	T.	
Alpena.....	1	*	Missoula.....	T.		Wausau.....	T.	
Battle Creek.....	T.		Nebraska.			Pennsylvania.		
Big Rapids.....	1		Alliance.....	4		Erie.....	1	0.0
Bloomington.....	T.		Broken Bow.....	T.		Lawrenceville.....	T.	
Cadillac.....	3		Central City.....	T.		Pittsburgh.....	T.	0.0
Calumet.....	10		Imperial.....	T.		Towanda.....	T.	
Detroit.....	T.	0.0	Lincoln.....	T.		South Dakota.		
Escanaba.....	T.	20.0	North Platte.....	T.		Huron.....	T.	24.0
Grand Haven.....	T.		Oakdale.....	1		Pierre.....	T.	§
Grand Rapids.....	T.		Valentine.....	5		Rapid City.....	T.	1
Harrisville.....	2		Nevada.			Yankton.....	T.	§
Houghton.....	4	4.0	Tonopah.....	T.		Vermont.		
Iron River.....	T.		New Hampshire.			Burlington.....	0	*
Ironwood.....	4		Bethlehem.....	T.		Northfield.....	T.	
Lansing.....	T.		Hanover.....	T.		St. Johnsbury.....	T.	
Ludington.....	T.	0.0	New York.			Wisconsin.		
Mackinaw.....	1		Reaver River.....	15		Ashland.....	1	
Mancelona.....	8		Buffalo.....	2	†	Sheboygan.....	T.	
Marquette.....	10	†	Canton.....	T.		Wausau.....	T.	
Menominee.....	6		Herkimer.....	T.		Wyoming.		
Newberry.....	T.	*	Ogdensburg.....	1		Cheyenne.....	T.	
Saginaw.....	1		Oswego.....	T.	0.0	Sheridan.....	T.	
St. Ignace.....	T.		Rochester.....	T.	0.0	Yellowstone Park.....	2	
Sault Ste. Marie.....	T.	19.0						

* Shore ice. † Floating ice. ‡ Packed field ice. § Measurement impracticable. T. indicates trace.

have moved beyond vision over the northern portion and are breaking up over the southern portion, and the southern connecting rivers are open. The Lake Erie fields extend from Cleveland to Buffalo along the southern shore. The Lake Ontario fields are but few and located in the extreme eastern portion, the harbors being open. There is more ice in western Lake Superior and less in the central and eastern portions and less in all other lakes than last season at this date.

Minneapolis, Minn., March 30.—At most places in Minnesota where snow is now reported there are merely drifts remaining, the greater part of the ground being bare.

Sioux City, Iowa, March 29.—The water is flowing over the ice in the Missouri River here, and measurement is impracticable.

Yankton, S. Dak., March 29.—There is little snow in town except in sheltered places, but the snow is 2 or more feet deep in low places in the surrounding country. The Missouri River is open near shore, so the measurement of ice in the channel is impracticable, but it is estimated to be 10 inches thick.

P. C. DAY, Climatologist and Chief of Division.

NOTE.—This will be the last bulletin of this series for the season of 1914-15.

Bulletins showing the condition of the ice in the Great Lakes will probably be issued from the Weather Bureau office in Detroit, Mich., for several weeks. Copies may be secured by addressing the office at that place.